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ABSTRACT

This report is the product of a cooperative planning effort by a group of leaders in higher education across Missouri to summarize the available resources for distance education in the state and offer recommendations for increased access. After an introduction, a description of the planning process, and a statement of the group's guiding principles, the report urges that any telecommunications-based delivery system should: emphasize access, be learner-centered, be faculty-supported, provide high quality instruction, support institutional missions, emphasize educational partnerships, use integrated evaluation and improvement strategies, and use appropriate technologies. The current status of telecommunications supported distance learning in Missouri high education is detailed for the specific areas of Internet services, Community Information Networks, video networks, satellite downlinks, and degree programs offered through cooperative arrangements. Extensive recommendations are addressed to the Governor and General Assembly, the Coordinating Board for Higher Education, other state agencies, educational partnerships, and individual institutions. These focus on increasing access, development of a voice/video/data network, expansion of the state information technology system, adoption of a common data exchange system, and statewide access to library resources. A time-frame for implementing recommendations is also provided. Eight appendices provide detail on personnel involved in the report, reports from affinity groups, and lists of current distance education programs. (Contains 13 references.) (JLS)

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Recommendations for a

TELECOMMUNICATIONS-BASED DELIVERY SYSTEM

Presented to the
Coordinating Board for Higher Education

by the

Resource Group for a
Telecommunications-based Delivery System

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June 13, 1996
Northwest Missouri State University
Maryville, Missouri

HE 029 798

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Recommendations for a Telecommunications-based Delivery System

EXECUTIVE SUMMARY

This report is the product of a unique cooperative planning effort by a group of leaders in higher education, in both the public and independent sectors, across Missouri. A priority for the state is expanded access to postsecondary education for all its citizens. In an open and deliberate process that called on the expertise of literally hundreds of people across the state, the group explored ways Missouri can use partnering among public and independent institutions and the delivery of education through telecommunications to increase access, enhance quality, and improve cost-effectiveness.

Through its deliberations, the group has created both a philosophical framework and specific recommendations for a learner-centered system of higher education that will be progressive, flexible and cooperative. The system features the use of advanced telecommunications to increase statewide access to education opportunities at all levels. The points below highlight their key recommendations.

- After careful consideration of the advantages and disadvantages of centralized systems such as Colorado's Electronic Community College and the Education Network of Maine, the resource group believes that Missouri will be best served by a system that builds on existing networks and supports existing colleges and universities in using telecommunications technologies to make their high-quality programs readily accessible to citizens throughout the state.

- Increasing access to higher education programs for all Missourians can be accomplished most effectively and efficiently through partnerships among institutions of higher education, public and independent, to provide courses, degrees and training, consistent with institutional missions, to individuals and locations throughout the state using appropriate telecommunications technologies.

- The collective access and network capacity needs of the higher education community need to be explicitly included in the state's plan to design and implement an expanded statewide voice/video/data network. Colleges and universities, public and independent, must move quickly to provide these access and network capacity needs to state planners.

- State funding recommendations should include funding for the expansion of the state information technology backbone. CBHE funding recommendations should include funding for information technology infrastructure development at each public institution, including funding for maintenance and support as part of core institutional budgets.

- The CBHE should revise its program approval procedures, funding guidelines, and other agency policies as necessary to provide timely support to both educational partnering and the delivery of high quality education through telecommunications.

- All higher education institutions should adopt a common system for the electronic exchange of student transcript and financial aid data. This will be essential for providing financial aid for students simultaneously taking courses at more than one institution.

- The recommendations provide initial guidance to institutions and partnerships on meeting the needs of distant learners for convenient access to the resources needed to support their learning, including:

    - financial aid;
    - advising;
    - course registration;
    - library resources;
    - information on institutional fees and requirements;
    - consumer protection information;
    - necessary training in utilizing technology resources;
    - feedback through assessment of student outcomes; and
    - timely availability of all courses needed to complete certificates or programs.

- All library collections in the state should be viewed as a collective resource for higher education learners. Statewide access to library resources will require a coordinated system for the requesting and quick delivery of materials to any location in the state, as well as statewide student access to reference services and training in information retrieval.

- The resource group recognizes the importance of faculty involvement in the delivery of distance education and urges institutions to:

    - involve faculty in the design of distance education courses and programs;
    - provide faculty with professional development in distance education as needed; and
    - incorporate incentives and rewards for distance education instruction and scholarship.

- Because this report does not represent the end of the process, but the beginning of a distance learning system, an advisory group representing all of Missouri's higher education community should be established immediately to address emerging issues related to state and regional needs, technological infrastructure and policy.

I. INTRODUCTION

Across the country, higher education is exploring the potential of recent developments in technology and telecommunications to improve access, quality, and cost-effectiveness, both on and off the campus. Many institutions are using new technological tools as part of teaching and learning reform efforts underway on their campuses; some are discovering that the linkage of new technological innovations with best practices in teaching and learning can be a powerful, even transformational, combination.

At the same time, many states hope that advances in telecommunications will help them meet increased statewide demands for access to workforce education and training. Higher education is expected to face unprecedented demands for access in the near future, even as fiscal resources dwindle. Futurists estimate that in the year 2000 and beyond, to remain competitive, or even merely employable, each individual in the workforce will need additional learning equivalent to 30 credit hours, every seven years[1]. Meeting this projected demand under traditional educational and fiscal structures will likely be difficult.

The governors of the western states, working together to create a Western Virtual University, expect

> a virtual university to be operating in the near term through which instruction is accessible via advanced technology throughout the West at the learner's convenience, learning can be certified to the satisfaction of both employers and academic institutions through the assessment of competencies, and states and the private sector will share in the development and use of instructional materials[2].

As institutions undertake technological innovation, however, they find that technologies inevitably shape the cultures that create and utilize them[3]. In addition to large initial cost, many uses of educational technology necessitate the hiring of new technology staff, faculty professional development and even training for students. Further, the adoption of new technologies may call into question a number of traditional academic structures, from faculty workload to the course-based certification of learning.

Missouri Institutions Prepare for the Future

Institutions striving to meet the needs of learners, in Missouri and in other states, are simultaneously struggling to increase their cooperation and articulation with other institutions and to carve out distinctive niches for themselves.

> At the core of this more promising future is a paradox that only higher education itself can resolve: colleges and universities must simultaneously become more nearly interchangeable nodes on an expanding educational network, and, as individual institutions, they must become more distinctive and discernible from one another[4].

Missouri's institutions currently offer a number of programs and courses through distance learning, some of which involve cooperative efforts among institutions (see section V). While innovative partnerships are springing up rapidly, the state has only begun to tap the potential of partnering and telecommunications to strengthen its system of higher education.

A Blueprint for the Future of Higher Education

To build on Missouri's strengths and address the new challenges and opportunities facing higher education today, the Coordinating Board for Higher Education is designing a Blueprint for the Future of Higher Education. This Blueprint will be a plan for increasing statewide access to postsecondary education and training while maintaining focus on quality and cost-effectiveness. The completed Blueprint will describe a well-balanced, coherent and integrated system of postsecondary education.

The creation of this Blueprint involves a review of Missouri's higher education public policy framework through statewide planning efforts organized around three themes:

- Designing and coordinating an effective telecommunications-based delivery system for all of postsecondary education.
- Designing a comprehensive plan for postsecondary technical/vocational education.
- Reviewing institutional missions in the context of the policy framework adopted by the CBHE in 1992 based on recommendations of the Task Force for Critical Choices in Higher Education.

Separate statewide resource groups worked intensively from December 1995 to June 1996 on the first two tasks, while the CBHE Presidential Advisory Committee, composed of presidents and chancellors representing public and independent two- and four-year institutions, addressed the third topic. This document, the report of the Telecommunications-Based Delivery System Resource Group, is an integral part of Missouri's Blueprint for Higher Education; it provides an initial framework to guide institutional mission enhancement in the area of telecommunications-based delivery of education, including vocational/technical education. The creation of this report is described in section II.

This report is clearly not the final word on this topic. Issues will continue to emerge as the state works to take advantage of the best that technology can offer to strengthen access, quality and cost-effectiveness in higher education in Missouri. The process of addressing these issues is likely to involve an unprecedented level of communication and cooperation among the state's institutions, both public and independent. However, the open and broadly participatory process used by this group has resulted in a comprehensive set of principles and recommendations that will offer a strong foundation for the telecommunications-based delivery of education in Missouri.

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1. Dolence, Michael G. and Donald N. Norris, Transforming Higher Education: A Vision for Learning in the 21st Century. Published by the Society for College and University Planning, 1995.

2. "Goals and Visions for a Virtual University," machine readable document, publisher: Western Interstate Consortium for Higher Education, source: http://www.wiche.edu.

3. Mehlinger, H.D. "School Reform in the Information Age" in Phi Delta Kappan, Volume 77, Number 6, February 1996.

4. "Twice Imagined," in Policy Perspectives, published by The Pew Higher Education Roundtable sponsored by The Pew Charitable Trusts. Volume 6: Number 1, Section A (April 1995).

II. THE PLANNING PROCESS AND ACTIVITIES OF THE RESOURCE GROUP

This report was created by representatives of all sectors of Missouri's higher education community. The core members of the group were educational leaders from public and independent institutions throughout the state, assisted by advisors with specific areas of expertise. The activities of the resource group were launched with the Governor's Conference on Higher Education in December 1995, when national experts on telecommunications identified key issues and engaged in conversations with more than 400 conference participants from all parts of the state.

Several important documents informed the discussions of the resource group. The vision and goals in the 1992 Task Force on Critical Choices for Higher Education Report, **Suggested Statewide Public Policy Initiatives and Goals: Report to the Coordinating Board for Higher Education**, provided a policy backdrop. The recommendations of the University of Missouri's 1994 report on telecommunications infrastructure and the 1995 report of the Commission on Informational Technology were supported by the group. Additional referenced documents are listed in the appendix. The resource group also received informative presentations by Missouri experts on telecommunications topics and Missouri's demographics and employment trends at its initial meetings.

The resource group launched its creative efforts by designing a set of guiding principles that describe the central qualities of the desired system. The Guiding Principles speak to the sharing of resources both within and beyond higher education, supporting multiple technologies based on internationally adopted standards, system flexibility and continuous evaluation. Above all, they advocate a system that is learner-centered.

The Desirable Characteristics of a Telecommunications-based Delivery System for Higher Education build on the Guiding Principles. They describe the state's expectations for good practice and serve as criteria against which any policy recommendations are to be evaluated. These Desirable Characteristics address access, learner-centered activities, faculty support, quality instruction, support of institutional missions, educational partnerships, an evaluation process, and the appropriate use of technology.

In March 1996, during the course of the resource group's efforts, the Transfer and Articulation Conference was held. More than 325 people were in attendance at this conference, including faculty, deans, academic officers, advisors, and registrars. Presentations that highlighted the relevance of telecommunications issues to transfer and articulation included sessions on electronic interchange of transcripts, electronically accessible course equivalency tables, and a distance learning session that brought together a representative of an accrediting agency and several institutions that participate in distance delivery.

A key activity of the resource group in January and February 1996 was the review of existing CBHE policies on the telecommunications-based delivery of education to determine whether the policies support the group's Guiding Principles, and to detect any barriers, whether overt or subtle, to implementing an effective telecommunications-based delivery system for higher education. The group recommended a few minor changes in the policy language, and encouraged the CBHE to fully implement these policies.

The group also examined portions of additional CBHE policies in other areas that might impact the effective operation of the telecommunications-based delivery system. This review covered CBHE policies regarding credentialing, regulation, institutional responsibility, faculty issues, financing and financial aid, funding, program approval, transfer and articulation, etc. A list of the CBHE policy documents reviewed is provided in Appendix H of this report. The recommendations of the resource group regarding CBHE policies can be found in the recommendations section of this report.

To explore the potential impact of distance education in all aspects of higher education, ten affinity groups -- made up of institutional personnel in specific fields drawn from two- and four-year public and independent institutions across the state -- were asked to study the issues in their areas of expertise and provide recommendations to the resource group. The resource group also appointed a "technical" subgroup to address issues related to infrastructure.

The affinity groups included representatives from public and independent two- and four-year institutions. The chief academic officers, faculty senates (public four-year only), finance officers, financial aid officers, student affairs officers, librarians, directors of institutional research, assessment consortium members, continuing education deans, and the transfer/articulation committee members constituted the ten affinity groups.

Each affinity group gave one or more reports to the resource group at its meetings in March, April, and May. The resource group incorporated many of the suggestions of the affinity groups into its recommendations to the CBHE (see section VI). Lists of the affinity groups, their membership, and complete copies of their recommendations to the resource group are provided in the appendix.

Taken together, the six meetings of the group and numerous meetings of the ten affinity groups resulted in a ground-breaking set of recommendations which address issues ranging from financial aid to assessment to bandwidth. Specific recommendations are directed to the General Assembly, the CBHE, other state agencies, educational partnerships, and individual institutions. The group concluded their efforts by constructing a time frame for implementation of the recommendations and a list of questions that will need to be addressed in coming months and years as the telecommunications-based delivery of education unfolds in Missouri.

This process has resulted in conversations and dialogues throughout all sectors of the higher education community regarding the advantages of cooperation and partnership. Although the delivery of educational services by telecommunications is not new, the willingness of institutions to work together to enhance the delivery of quality education is gaining support and evolving into accepted practice.

III. GUIDING PRINCIPLES

These principles were created by the resource group to describe the fundamental assumptions that will guide the development of Missouri's telecommunications-based delivery system, and to provide a philosophical framework for the additional work of the group.

(1) The system must be **learner-centered**. Any decision regarding the system should consider the perspective of the student over that of individual institutions.

(2) The system should provide learners in all locations with **access** to a broad spectrum of high-quality education opportunities at an equitable price.

(3) The system must support the **sharing of resources** for education and economic development among educational entities, governmental agencies, hospitals, libraries, communities, and business and industry.

(4) Because no one technology can meet all needs, the system should support **multiple technologies**, based on internationally adopted standards. Where appropriate, the system should have the capacity to integrate voice, video, and data, and should allow multiple concurrent sessions.

(5) The system must be **flexible**, having the capacity to:

integrate existing technologies,
incorporate evolving technologies, and
grow with demand.

(6) The effectiveness of the system should be **evaluated** and improved continually, and related CBHE policies should be updated as necessary to support the system.

IV. DESIRABLE CHARACTERISTICS OF A TELECOMMUNICATIONS-BASED DELIVERY SYSTEM FOR HIGHER EDUCATION

The charge to the Telecommunications-based Delivery System Resource Group included the description of characteristics of an effective system. The characteristics below build on the Guiding Principles. Taken together, the principles and characteristics describe the state's expectations for good practice in telecommunications-based delivery of education, and serve as the framework for the policy recommendations of this group.

The overarching themes for the desirable characteristics of the system are: (1) increasing access to educational opportunities for Missouri's citizens and (2) a focus on the needs of the learner over the needs of individual institutions.

Missouri's telecommunications-based delivery system for higher education should:

A. Emphasize Access

The system provides citizens across the state with improved access to needed education by:

1. Focusing on providing new or existing **programs that meet identified needs**.
2. Providing students across the state with **access to financial resources**.
3. Providing students across the state with **access to support services**, as outlined in the next section.
4. Providing students **instruction in utilizing technology resources** needed to pursue their educational goals.
5. Using a **cost-effective** approach to maximize the level of access and number of options available to citizens.
6. Conducting an ongoing process of **evaluation and feedback** to ensure that identified needs are being met effectively and efficiently.

B. Be Learner-Centered

Those enrolled have convenient access to the resources needed to support their learning, regardless of student location, including:

1. **Information**: Students have both paper and electronic access to accurate information about educational opportunities available in the state through telecommunications.
2. **Consumer protection**: Students have clear information concerning their rights and responsibilities.

3. **Financial aid**: State, inter-institutional and intra-institutional policies work together to facilitate student access to financial aid.

4. **Advising**: Students receive advising on the prerequisite knowledge for courses and programs, as well as counseling on their planning for future education and training.

5. **Library Resources**: Appropriate learning resources are available to all students.

6. **Commitment to student success**: Once enrolled, students are guaranteed continuing student support services and the opportunity to complete their education or training in a timely fashion.

C. **Be Faculty-Supported**

Faculty receive support and rewards for participation in telecommunications-based delivery of instruction including:

1. Effective **professional development** opportunities prior to using telecommunications-based delivery systems, and on a continuing basis as needed.

2. Faculty tenure and promotion criteria and procedures which **reward telecommunications-based instruction and related scholarship**.

D. **Provide High-Quality Instruction**

1. The **quality and content** of instruction provided through telecommunications is equivalent to (or better than) that provided through traditional means, as measured by outcomes.

2. Students experience quality **interaction with faculty** and with other students, whether in real time or asynchronously.

3. Both student and faculty performance are regularly **assessed and feedback** is provided promptly.

4. Where **appropriate, accreditation of programs** is sought.

E. **Support Institutional Missions**

1. An institution's mission is based on the **expertise of that institution** in meeting the needs of Missouri's citizens for access to high-quality educational opportunities.

2. Institutional mission enhancements focus on providing increased access and addressing unmet statewide or regional education needs through **telecommunications-based delivery of instruction and educational partnerships**.

F. Emphasize Educational Partnerships

1. A priority is placed on developing and maintaining educational partnerships that address identified needs for **access to new or existing education programs**.

2. Partnerships are designed to be **efficient and effective**, using a variety of appropriate models.

3. Entities participating in partnerships **share responsibility for planning, implementing and supporting**:
    Comprehensive financial aid services
    Student academic support services
    Student access to informational resources
    Admissions standards
    Curriculum
    Faculty roles and relationships
    Faculty professional development
    Assessment of student performance
    Assessment of faculty performance
    Assessment of program quality and effectiveness
    Cost and revenue sharing
    Technical resources and maintenance

G. Use Integrated Evaluation and Improvement Strategies

1. **Student** performance is regularly assessed by the institution providing instruction, and the outcomes of assessments are made available to students in a prompt and convenient fashion.

2. **Faculty** performance is regularly assessed by the institution providing instruction, and the outcomes are used to improve the quality of instruction.

3. **Course and program quality** are regularly assessed by the institution(s) providing instruction, and assessment outcomes are used for the improvement of course and program quality.

4. The state's **system of telecommunications-based delivery** of education and training is regularly assessed to determine whether it meets state and regional needs within the context of the goals for the higher education system. The assessment outcomes are used for improving the efficiency and effectiveness of the system.

H. Use Technologies Appropriate to Needs

1. Education and training are provided using **delivery modes** appropriate to the number and location of the students and the nature of the course material.

2. At a minimum all **new technology purchases** should meet or exceed international standards and be adaptable to future needs, where possible.

V. THE CURRENT PICTURE: DISTANCE LEARNING IN MISSOURI HIGHER EDUCATION SUPPORTED BY TELECOMMUNICATIONS

In response to area needs, Missouri has already implemented a variety of telecommunications-based educational programs across the state. These include, among others, interactive TV networks that allow small rural high schools to share teachers for advanced classes, synchronous and asynchronous inservice and continuing education programs for professionals in a number of fields, on-the-job education and training programs for business and industry, and community development programs of many types. The technologies used in these projects include cable television broadcasts, one-way satellite broadcasts with two-way voice connections, asynchronous computer-mediated instruction and communication via the Internet, and interactive two-way video networks.

In addition, distance learning programs originating outside the state's borders are available to Missouri citizens via Internet, satellite, cable television and other technologies. These educational offerings include associate, bachelor's and master's degrees from regionally accredited institutions, as well as specialized courses targeting the on-site job training market in business and industry.

At present, Missouri's distance learning networks represent a system of non-interconnected resources. For example, to get the telecommunications services it needs, a college may have: 1) a high-speed telecommunications line for Internet access; 2) a high-speed telecommunications line for two-way video; 3) a cable connection for cable TV courses; 4) a satellite downlink and/or uplink for asynchronous or synchronous video broadcasts; and 5) a separate campus telephone system and long distance inter-exchange carrier connection. Many institutions, both public and independent, hope to move toward a more integrated educational telecommunications system.

The following paragraphs present a sampling of the telecommunications-based education opportunities in Missouri. Appendix E provides maps of a number of the telecommunications networks in the state.

A. Internet

The Missouri Research and Education Network (MOREnet) provides Internet access for the state's public four- and two-year institutions, as well as many of the independent institutions. Most of the state's K-12 schools also have access to the Internet by direct or dial-up MOREnet connections. MOREnet also connects Missouri's public libraries, state and some local government agencies and the growing number of community information networks across the state.

Within individual campuses, access to campus networks varies from campus to campus and discipline to discipline. While most institutions have plans to complete their campus networks, at this writing not every faculty or student currently has a personal point of access. Access on a space-available basis through computer labs and departmental facilities is provided.

Appendix E contains additional information on MOREnet as well as maps of the K-12 MOREnet participants.

B. Community Information Networks (CINs)

The establishment of Community Information Networks (CINs), which provide citizens with low- or no-cost Internet connectivity, has profound educational implications. Established CINs are located in Columbia, Springfield, Pilot Grove, Kansas City, and Lebanon, while a number of others are under development and may be online by the time this report is circulated. Governor Carnahan's 1997 budget provides six million dollars for the creation of 80 CINs.

C. Video Networks

A series of maps of Missouri's video networks are provided in Appendix E. They represent an informal inventory of Missouri's video systems for delivery of education and training, and have been provided by the networks. Most of the networks on these maps are two-way networks.

D. Satellite Downlinks

A map of the satellite downlink sites at the University of Missouri's extension centers is provided in Appendix E. In addition, all public two- and four-year institutions and almost all public K-12 schools in the state are equipped to receive satellite broadcasts.

E. Missouri's Cooperative Programs Through Distance Learning as of March 1, 1996

As of the writing of this report, Missouri has several degree programs originating from inside its borders that are delivered through telecommunications. Central Missouri State University offers an MS degree in industrial safety management through interactive television. Both UM-St. Louis and UM-Kansas City offer masters degrees in nursing using interactive video, and UM-St. Louis offers a baccalaureate completion program in nursing.

The state is on the verge of rapid expansion in this delivery mode. In one semester at a public four-year college, that college received video courses from one public community college, one four-year regional university, two campuses of the University of Missouri system, and one out-of-state university. It received one course originating out of state through the Internet and provided facilities for two K-12 teacher workshops, one state agency teleconference, and 18 U.S. Chamber of Commerce teleconferences.

One campus of the University of Missouri is a supplier of courses to the National Technological University, while another university with a statewide mission occasionally uses teleconferences as professional development opportunities for its faculty and staff but does not deliver instruction by video. At another regional university, three faculty members scheduled one-time-only sessions of their courses through institutional video facilities to help cover a problem area.

A small independent institution, Central Methodist College, provides more than 50 percent of the courses for bachelor's degrees in education and nursing at East Central College, a public community college near St. Louis, via two-way interactive television.

There are no figures on the use of the Internet for posting homework assignments or for providing additional question-and-answer time, but anecdotal evidence suggests that this element of telecommunications may actually be the most rapidly expanding. One campus of the University of Missouri allows students to register through the Internet.

KMOS, the public television station in Warrensburg, is a state resource that serves 103 school districts with more than 890 hours of televised instruction purchased from 29 different providers. The school districts receiving distance learning are about equally divided between those who receive KMOS as a broadcast signal and those who receive it through a satellite downlink.

VI. RECOMMENDATIONS

This section of the report contains the policy recommendations of the resource group for the CBHE and additional constituencies. These ideas are presented in groupings that indicate the constituencies most likely to have the ability to implement the proposed recommendations.

A. For the Governor and the General Assembly

1. Access to education

As part of the development of the state network, the state should:

a. create a statewide interactive distance learning network transmitting voice, video and data which can be used by all colleges and universities, both public and independent;
b. provide supplemental funding for additional costs associated with distance learning;
c. reduce line charges for education through a statewide contract.

2. State financial aid programs

The CBHE should propose legislation and amend existing administrative rules so that state grants and scholarships can be awarded to eligible students enrolled at multiple institutions and/or in distance education programs. Issues to be resolved include definition of full-time enrollment, length of and definition of semester or term, definition of satisfactory academic progress, and definition of cost of education for student aid eligibility purposes.

3. Technical infrastructure

While specific recommendations regarding CBHE budget priorities are found elsewhere in this report, the group urges the state to support the expansion of its technical infrastructure by developing additional community information networks (CINs) in their roles as a part of the technical and telecommunications infrastructure. These networks provide local access to global, national, state and local information and education opportunities.

B. For the CBHE

1. Specific telecommunications policies

The existing CBHE policies that specifically address Telecommunications-based Delivery were reviewed by the resource group. The group recommended minor changes to those policies, and then encouraged the CBHE to fully implement the policies as soon as possible.

The recommended changes to the policies are listed below:

a. A statement of purpose has been added.

b. Paragraph f as currently written is unclear and should be rewritten or deleted. Paragraph f reads as follows:

> f. Affirms that the focus of authorization in distance learning by telecommunications should be on postsecondary institutions and other organizations which award credit that can be applied toward academic degrees, or which provide other credentials that have credit-bearing significance, such as programs leading to certification or proficiency or licensure. Authorization requirements should not apply to those institutions and organizations which are involved only in the production of courses or support materials.

The policies that incorporate their recommended changes:

CBHE policies regarding the Telecommunications-based Delivery System

Purpose: To increase access to high-quality educational opportunities for all Missourians, the Coordinating Board has created a policy that sets out broad goals for telecommunications-based delivery. The following six statements are consistent with the Guiding Principles adopted by the Resource Group on Telecommunications-based Delivery Systems in 1996. This set of policy statements must be supported by an approach that thoroughly integrates the idea of telecommunications into CBHE policies on all aspects of higher education as one of the best means for extending access to educational opportunities. An integrated approach would facilitate the implementation of the "telecommunications policy" and its day-to-day use in higher education to accomplish coherent, cost-effective delivery of quality instruction and education.

The Coordinating Board for Higher Education:

a. Supports the application of telecommunications-based delivery by encouraging the utilization of telecommunications technology through partnership arrangements among all higher education institutions.

b. Encourages telecommunications-based delivery systems through the Board's funding guidelines to ensure the effective use of such technology.

c. Requires that programs delivered through telecommunications take place within the context of an institution's educational mission.

d. Recommends the development and use of rigorous outcomes measures to assess program effectiveness.

e. Advocates approval of programs delivered via telecommunications not be contingent upon specific site approval. The process should require that each program meet or exceed explicit requirements of quality standards, including the provision of adequate library and other support services.

NOTE: The current program approval procedures of the Coordinating Board for Higher Education are predicated upon fixed and permanent delivery sites.

2. Recommendations on other existing CBHE policies

a. Institutional missions

It is possible that institutions with differing admissions standards may engage in partnerships via telecommunications. Institutions involved in partnerships for delivery of education will need to make joint decisions regarding appropriate admissions standards for their cooperative programs.

b. Partnerships

With regard to CBHE statements on partnerships (from the section "Vision for Missouri Higher Education," in Suggested Statewide Public Policy Initiative and Goals, the report of the Task Force on Critical Choices for Higher Education, adopted by the CBHE on December 10, 1992) and cooperative ventures (from the CBHE policy on telecommunications adopted September 9, 1988), the resource group recommends that cooperation not be rewarded for its own sake, but for the contribution it makes to addressing the needs of the state's learners.

c. Program approval

The resource group recommends that these policies (New Academic Programs Review Policies and Procedures: Public and Independent Two- and Four-Year Institutions, October 1989) be fully reviewed with the goal of streamlining them where possible and making them responsive to new forms of program delivery. This process is currently underway with the chief academic officers. The adoption process for related administrative rules, once they are drafted, may take as long as six months.

d. Doctoral programs

The Critical Choices goal for doctoral programs, which encourages the state's public and independent doctoral institutions to strive for national recognition, could be expanded to include all graduate programs. In addition, this goal recommends that all faculty be provided access to electronic communications networks, such as MOREnet, BITNET, NSFNET and Internet; it was recommended that this part of the goal be updated.

3. Additional recommendations to the CBHE

a. Funding priorities

1) Technology infrastructure

   a) In cooperation with other state agencies and the Office of Information Technology, the CBHE should promote the bandwidth expansion of MOREnet and state IVDN/University of Missouri Network, and the immediate addition of at least one additional T1 line capacity to each public institution of higher education and each area vocational/technical school to support Internet connectivity and interactive video applications.

   b) A high priority should be to identify the combined needs of all higher education providers for network access and capacity. The partnering of public two- and four-year institutions with independent higher education institutions, other state agencies, museums, botanical gardens, etc., will strengthen the state's bargaining position with vendors supplying bandwidth and telecommunications equipment.

2) Institutions

   a) The CBHE's funding to institutions should support the development and implementation of distance learning through telecommunications, within the missions of institutions, to meet identified needs.

   b) The CBHE is urged to address the balance of funding between institutions where instruction originates and institutions where instruction is received so that financial incentives exist for institutions in either role.

b. Partnering and resource sharing

Increased partnering and sharing of resources, both within the public sector and across public and independent sectors, will promote focused creative approaches to meeting the educational needs of the state and enhance the quality of our advanced degrees.

1) The CBHE should encourage the development of resource sharing between public and independent

two- and four-year institutions, businesses, community information networks, libraries, high schools, extension centers, and other interested parties for the design and delivery of distance education and training.

2) The CBHE should promote the formation of formal partnerships among two- and four-year institutions, both public and independent, for the purpose of increasing access and meeting state and regional education needs.

3) The CBHE should develop guidelines for formal educational partnership agreements.

c. **Planning for Missouri's educational needs**

In undertaking planning and needs assessment, the existence of planning and needs assessment structures set up for postsecondary vocational/technical education should be acknowledged. It may be possible to utilize the information gathered through those structures when relevant to planning initiatives to provide access to educational opportunities through the telecommunications based delivery system.

1) Needs assessment

  a) The existing CBHE statutory responsibility to identify educational needs applies to distance education offered through telecommunications.

  b) One effective way of doing needs assessment may be on a regional basis, making use of existing structures, such as the university/community college/AVTS planning and service regions.

2) Meeting needs

The emergence of opportunities available through telecommunications suggests that the needs of a region may be addressed through a combination of programs originating both within and external to the region.

3) Distance learning planning group

The CBHE should facilitate the activities of a group representing Missouri's public and independent higher education institutions to work on issues related to distance learning through telecommunications as they emerge. It is suggested that subsets of this group focus on key topics including:

a) How Missouri's state and regional needs in postsecondary education best can be addressed through distance learning;

b) Concerns related to technological infrastructure; and

c) State and institutional policy issues, as well as legislation, related to distance learning through telecommunications.

d. **Electronic information access**

- A CBHE world wide web page should be created to:

1) Provide links to public and independent institutional information on:

    a) distance education program and course offerings;
    b) admissions and registration;
    c) institution and program requirements;
    d) financial aid; and
    e) student support services.

2) Provide access to:

    a) consumer information on issues related to accumulation and transfer of credit from multiple institutions; and
    b) online career development software.

e. **Electronic data interchange**

The CBHE should encourage all public and independent institutions to implement a coherent system for the secure and confidential electronic exchange of current student data on financial aid, fees, enrollment and transcript information. The CBHE should play a role in promoting and implementing this system.

f. **Financial aid**

The CBHE should develop common forms and materials for consortial agreements for statewide use. Some of these materials may require review by the U.S. Department of Education and appropriate state agencies to ensure compliance with program regulations.

g. **Library services**

Statewide access of postsecondary students to needed library services and materials will require the combined resources of the state's public and private libraries. An effective system will require a common and easy-to-use system for requesting materials and quick delivery to any location in the state.

1) To facilitate this, the CBHE should seek funds for and promote the use of:
   a) a common library system platform;
   b) a statewide resource delivery system for all academic libraries.

2) The CBHE should encourage independent institutions, the state library, and other public and private libraries to participate in the statewide circulation and delivery system.

3) To allow institutions to capture the most value from their current systems, these changes could be phased in over a period of years.

h. **Linkages with other agencies and business and industry**

The CBHE should take a leading role in broadening the connections between higher education and business and industry. This recommendation echoes the recommendations of the Technical Education Resource Group. Working with agencies like Economic Development, the CBHE should help strengthen the linkages between the private sector and higher education, so that the primarily local linkages between institutions and businesses can have a broader statewide base. While such linkages would usually remain local, a strong statewide foundation for education-business pairings can help foster access, particularly if information on the identified needs of business and industry is made available throughout the state via the CBHE web page or other means.

i. **Consumer protection**

1) The CBHE should work with the Attorney General's Office to strengthen consumer protection for distance education learners.

2) The CBHE should help students distinguish between programs and courses offered by accredited and non-accredited institutions.

j. **Lifelong learning**

The CBHE should ensure that its policies support lifelong learning.

k. **Credit bank study**

The CBHE should study the need for a credit bank for citizens of the state not affiliated with one specific institution to enable them to store course credits and transfer them to a Missouri institution.

C. For other state agencies

1. Department of Elementary and Secondary Education

A+ Schools

Officials responsible for the implementation of the A+ schools program should review the relevant statutes to determine if they present any barriers to students who might receive an associate degree program via telecommunications.

2. Office of Administration

Statewide information resources

The state should license, for statewide use, an appropriate array of electronic information resources, including journal citation and full-text databases and reference tools.

3. Other state agencies

a. **Technology infrastructure**

It is recommended that all state agencies (and education institutions) cooperate in adopting common technology standards wherever and as soon as possible. For example, the current minimum standard for data transmission should be TCP/IP and for video the ITU interchange standards (non-proprietary enhancements). These standards should be regularly reviewed and updated as the technology evolves.

b. **Financial aid**

The delivery of public or private non-Title-IV, non-state aid, or third party programs (i.e., veterans' benefits and vocational rehabilitation funds) should be the responsibility of the agencies funding and administering such programs. These agencies would need to have access to a statewide database of student information to monitor and administer their programs.

D. For educational partnerships

To meet the needs of Missouri's citizens for access to educational programs, and to stay competitive in the current market, institutions must put the needs of the state's learners above the concerns of individual institutions. Within the context of their missions, institutions are encouraged to address identified state and regional needs by partnering, with each other and with other appropriate entities, to maximize the access, quality, efficiency and effectiveness of the state's higher education system.

To meet needs in certain fields, it may be appropriate to regard all the higher education faculty of the state in a specific field as a potential collective resource for the design of curricula and delivery of programs at various sites throughout the state, utilizing telecommunications as appropriate, through carefully designed partnership agreements.

1. Partnership agreements

   a. Partnership agreements should focus on the needs of learners (as described in the Guiding Principles and Desirable Characteristics, sections III and IV of this report) by:

      1) Defining institutional responsibilities for coordinated student academic advisement and support services, including access to library resources.

      2) Defining faculty roles with regard to curriculum planning and implementation.

      3) Ensuring that necessary courses will be offered within a reasonable time period.

      4) Providing comprehensive financial aid services for students.

      5) Designing a plan for assessment of student, faculty, institutional and partnership performance.

         a) Each institution in a cooperative venture should assume responsibility for ensuring that it conducts assessment, analyzes and interprets the data collected, uses the information to improve the assessed processes, and disseminates the results in a professional and ethical manner.

         b) Institutions involved in joint ventures should cooperate in the sharing and development of assessment instruments and processes.

         c) It is ultimately the responsibility of the certificate- or degree-granting institution to determine the standards of performance required of its graduates.

6) Setting mutually agreed-upon cost sharing and pricing policies. Recognizing that faculty from more than one institutuion may participate in teaching a course, it is important that institutions resolve how credit will be applied to FTE calculations before courses are offered.

7) Designating which institution(s) will award degrees or certificates.

8) Defining responsibility for provision and maintenance of necessary technical resources.

9) Alignment of the academic calendars of participating institutions as needed.

b. Funding of Cooperative Programs

1) Cooperative programs should be formally structured with CBHE approval and should contain a date for either termination or renewal determined in part by achievement of clearly stated performance goals.

2) Cooperative program agreements approved by the CBHE should clearly state the funding expectations and identify institutional responsibility for securing and allocating state appropriations.

2. Examples of specific degree programs using educational partnerships

a. Delivery of associate degree programs, statewide, by a partnership of institutions should be a priority for distance learning through telecommunications. It might be possible to deliver associate degree programs to every interested Missourian within a relatively short period of development.

b. Partnerships between public and independent institutions could develop program agreements for the delivery of baccalaureate and graduate programs for which a widespread need is identified. Such programs would be particularly appropriate in disciplines which require locally accessible practicum, laboratory, or similar technical arrangements. Examples of these programs might be the master of nursing (MSN), master of social work (MSW), and the master of library science (MLS), Also, the doctorate in education administration (EdD) degree could be provided statewide through a cooperative agreement between the University of Missouri system and other institutions. Depending upon the partnership arrangement and the missions of the institutions involved, degrees might be jointly granted.

E. For individual institutions

In its recommendations to institutions, the resource group repeatedly stressed the importance of focusing on the needs of the learner rather than those of the institution. This focus will require institutions to employ flexibility and creativity as they strive to provide all learners with an educational experience characterized by high quality in all aspects.

1. Principles of Good Practice

The "Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs" (see Appendix G) developed by the Western Cooperative for Educational Telecommunications may soon be adopted by the North Central Association. Institutions may want to consider adopting these principles as a supplement to the guiding principles and desirable characteristics of this report.

2. Campus information infrastructure

a. Individual institutions should make the completion of their on-campus information networking and Internet access a priority in their internal budgeting of technology funds.

b. As Internet access has become a basic need of students, and campus modem pools have become a limiting factor in service, institutions may want to consider negotiating outsourced low-cost Internet services for all their students.

c. It is recommended that all higher education institutions cooperate in adopting common technology standards wherever possible, as soon as possible. For example, the current minimum standard for data transmission will be TCP/IP and for video it will be ITU interchange standards (non-proprietary enhancements). These standards should be regularly reviewed and updated as the technology evolves.

3. Electronic access to information

a. Each institution, public and independent, should maintain a world wide web page that provides a listing of courses and programs available through telecommunications, as well as the course catalog and other institutional information.

b. Institutions are encouraged to promote the development of community information networks (CINs) in areas that need improved access to education and economic opportunities.

4. **Student records**

   a. The universal acceptance of electronic data interchange (EDI) for the transfer of enrollment data, transcripts and financial information would facilitate the secure and accurate exchange of information. In the instance of students enrolled at multiple institutions in distance education programs, this could save time and effort for student counseling, determination of eligibility for financial aid, etc.

   b. In the case of distance learning involving multiple institutions, the institution providing instruction should provide academic records in a timely manner to the credentialing institution so it can maintain full academic transcripts for the student.

5. **Financial aid**

   The key to the recommendations offered here is the need for simultaneously increasing flexibility to meet the needs of all learners for access to financial aid, while staying within the confines of related federal, state and institutional regulations.

   a. Consortial agreements will be needed to allow students with multiple enrollments to have full access to financial aid opportunities. (It has been suggested that the CBHE or another agency develop standard forms and materials for this purpose to increase the ease of providing financial aid to students.)

   b. All public and independent institutions should equip themselves for electronic data interchange (EDI) so they can easily exchange enrollment data, financial information, etc. in a secure and confidential electronic format.

   c. All institutions must agree to provide data and information in a timely manner and must establish and maintain cooperative relationships with all offices and departments within all institutions that are involved in distance learning.

   d. A student information system -- under the auspices of one state agency (probably the CBHE) -- should provide a central database of all students who currently have multiple enrollments.

   e. Any institutional barriers to providing a comprehensive scholarship or need based financial aid package should be identified and eliminated by the institution proposing the training, program or degree.

6. Institutional requirements

a. Institutional requirements for students should be very clear and published both electronically and on paper.

b. Institutions may wish to reconsider their residency requirements.

7. Transfer and articulation

a. Courses and/or programs delivered through distance education are expected to be of the same quality as those delivered on campus; therefore, acceptance of credit should be based on course content and student performance rather than mode of delivery.

b. Guidelines that are currently in place for student transfer and articulation among Missouri's colleges and universities, i.e. Credit Transfer: Guidelines for Student Transfer and Articulation Among Missouri Colleges and Universities (October 1987) and institutional articulation agreements should be adhered to for all courses delivered through telecommunications.

c. Continued efforts should be made to strengthen and expand articulation agreements among colleges and universities statewide to give students reliable guarantees of seamless transfer and fulfillment of degree requirements.

d. Program to program articulation agreements should be developed and adhered to for delivery by telecommunications.

8. Library services

a. All library collections in the state should be viewed as one large resource for higher education learners.

b. Every academic library should provide circulation privileges to any student who is taking a course through any Missouri accredited higher education institution.

c. Training programs in information organization, discovery and retrieval should be developed and made available to all students.

d. The academic libraries in the state should organize to provide remote, ready reference services.

e. Accountability for the existence of adequate library resources for distant courses or programs should be assigned to the institution where instruction originates.

f. Higher education institutions should adopt the Association for College and Research Libraries (ACRL) Guidelines for Extended Campus Library Service (see appendix H).

9. **Student support services**

The need for employing creative and flexible approaches to meet the needs of the learner is the paramount concern with regard to providing support services.

a. For students pursuing degrees and certificates, the institution that will award the degree or certificate should be responsible for ensuring that student services are available.

b. It will be important for an individual institution to take responsibility for the provision of support services to the student as soon as possible, so students that may eventually seek a degree or certificate are not accumulating courses without guidance.

c. Institutions should make student services -- particularly career and academic counseling and orientation -- available using multiple delivery systems (e.g., electronic, telephone, degree audit systems, self-advising) to make them as accessible as possible.

d. While distance learning places more responsibility on the learner for finding and accessing services than in an on-campus environment, each institution has a responsibility for ensuring that distant students know what services are available to them.

e. Institutions should streamline registration as much as possible for distant learners.

f. Both the state and the institutions have a responsibility to educate learners about the potential risks involved in accumulating educational credits from multiple sources towards a degree or certificate. Simple accumulation of credits does not guarantee applicability of those credits toward a degree.

10. **Student fees**

a. Each institution should review its student fee structure for fees that may need to be handled differently, e.g. recreational or athletic fees, computer fees.

b. Unless the institutions involved agree on a common fee structure, the student will normally pay the course fees of the institution assigning the credit.

11. **Faculty rewards and incentives**

The resource group recommends that individual institutions:

a. Create professional development standards and support mechanisms for faculty teaching through telecommunications.

b. Provide faculty with professional development opportunities and incentives for providing telecommunications-based instruction.

c. Provide faculty rewards for engaging in this type of instruction and related scholarship.

12. **Assessment**

The principles of assessment should be the same regardless of the mode and location of delivery of instruction, and consistent with institution's assessment plans.

13. **Institutional research**

a. Students participating in technologically mediated courses should be identified for institutional research purposes in a way that is unobtrusive and not visible on the transcript.

b. For the purpose of retention studies, a student receiving distance learning instruction from an institution that provides courses throughout the state should be counted as coming from that campus and should be treated no differently from the student on campus.

F. **Other constituencies that lack a formal means of access**

Groups whose educational needs are not currently being met are encouraged to contact the CBHE. Some Missourians may not be part of an existing organization such as professional associations, church groups, etc., that makes it easier to gain access to educational services. These learners are among those least represented in higher education.

As part of the CBHE's responsibility for needs assessment, the on-going distance learning planning group (whose creation was recommended in section VI.B.3.c.3) should develop a mechanism through which learners who do not belong to easily-definable constituencies may gain educational access.

VII. TIME-FRAME FOR IMPLEMENTING RECOMMENDATIONS

This section of the report provides a suggested time frame for implementing the recommendations of the resource group. The organization of this list has two themes:

1. Recommendations are listed by year, covering a period of three years. Additional recommendations that refer to activities that occur continuously are listed under the heading "Ongoing Activities."

2. To relate the recommendations back to the original priorities established by the group, they are clustered under the headings from the "Desirable Characteristics" of the system (see section IV).

NOTE: **The dollar sign ($) used as a bullet introducing an item indicates that significant direct costs are associated with the item.**

YEAR ONE (1996/1997) THEME: DISTANCE INFORMATION

Access

$ The CBHE budget proposals developed for FY 1998 for public institutions reflect telecommunications as a funding priority. The CBHE recommendations include incorporating some of the one-time technology funds into the core budgets.

$ The CBHE meets with public and independent educational entities and other state agencies to identify collective needs, promote bandwidth expansion and increased connectivity, and urge the state to bargain for reduced rates.

$ The CBHE works with other educational entities and state agencies to seek funding for FY 1998 for an additional T1 line to each public institution of higher education and area vocational/technical school, and for expanded network capacity among nodes and between Internet providers.

- First courses of statewide degree/certificate programs offered through educational partnerships for statewide degrees delivered through the telecommunications-based delivery system become available.
- The CBHE initiates writing of new/revised administrative rules for state financial aid programs and submits new/revised rules for comment/publication.
- The CBHE reviews policy revisions and additions suggested by the resource group.

- The CBHE facilitates the formation and activities of a group to address emerging issues related to distance learning through telecommunications. This group represents both public and independent sectors of higher education.
- DESE begins review of A+ legislation for barriers to associate degrees via telecommunications.

Focus on the Needs of the Learner

- The CBHE constructs a web page.
- Institutions construct distance education web pages.
- CBHE, institutions, and other financial aid providers work to plan and implement electronic data interchange (EDI), using FY 1997 technology funds, for enrollment, academic, financial and fee data for students with multiple enrollments.

$ Office of Administration obtains bids on a statewide delivery system for library resources.

$ Librarians plan the steps and identify the costs of a phased-in move to a single platform for statewide circulation of resources.

Faculty Support

- Individual institutions review needs and provide faculty professional development opportunities related to distance learning through telecommunications.

High-Quality Instruction

$ The CBHE and the institutions plan for the statewide delivery of degree programs, e.g., associate degrees, doctorate of educational administration, masters in library science, masters in social work, masters in nursing, and/or other degrees for which there is a compelling need.

- The CBHE continues the process of revising academic program approval procedures and submits new/revised rules for comment/publication.

Institutional Missions

- When reviewing their missions, institutions should consider how they can incorporate telecommunications-based delivery of education to better meet the needs of the region and the state.

Educational Partnerships

- The CBHE works with financial aid experts to develop common forms and materials for consortial agreements.
- The CBHE works with public and independent institutions to develop guidelines for educational partnership agreements.

Integrated Evaluation and Improvement Strategies

- Individual institutions discuss and develop potential strategies for dealing with assessment of distance education; those institutions currently in educational partnerships should review the assessment procedures for the partnership in light of the recommendations in this report.
- Regions of the state assess their postsecondary educational needs.

Appropriate Technologies

- Institutions direct resources toward the completion of their campus information infrastructures.
- Institutions develop registration and advising procedures to support distance education students.

YEAR TWO (1997/1998) THEME: DISTANCE DELIVERY

Access

$ The CBHE budget proposals developed for FY 1999 for the public institutions reflect telecommunications as a funding priority. The CBHE recommendations include incorporating some of the one-time technology funds into the core budgets.

$ Office of Administration contracts for additional library resources (along the MOREnet/EBSCO model).

- Individual institutions identify and resolve financial aid barriers.

Focus on the Needs of the Learner

- The CBHE, Missouri Occupational Information Coordinating Council, and institutions determine the best career development software for distance learner, on-line, self-advisement.
- Distance learning planning group studies credit bank options.
- Individual institutions review student fee structures.
- Individual institutions review residency policies.

Faculty Support

- Individual institutions update faculty reward systems to reward faculty for technology-based instruction and related scholarship.

High-Quality Instruction

- The revised CBHE academic program approval procedures are implemented.
- Institutions assess quality and effectiveness of their distance learning courses and programs offered through telecommunications.

Institutional Missions

- When reviewing their missions, institutions should consider how they can incorporate telecommunications-based delivery of education to better meet the needs of the region and the state.

Educational Partnerships

- Common forms and materials for consortial agreements for financial aid are implemented.

Integrated Evaluation and Improvement Strategies

- The distance learning group (representing public and independent higher education institutions of the state) evaluates how effectively identified needs are being addressed.

Appropriate Technologies

- Those institutions that have not already done so direct internal resources toward the completion of their campus information infrastructures.
- Individual institutions refine their distance registration and advising procedures.

YEAR THREE (1998/1999) THEME: DISTANCE MAINTENANCE

Access

$ CBHE budget proposals developed for FY 2000 for the public institutions reflect telecommunications as a funding priority. The CBHE recommendations include incorporating some of the one-time technology funds into core budgets.

Focus on the Needs of the Learner

$ Institutions/CBHE implement on-line career development software for distance learners.

High-Quality Instruction

- Institutions continue to assess quality and effectiveness of their courses and programs.

Institutional Missions

- When reviewing their missions, institutions should consider how they can incorporate telecommunications-based delivery of education to better meet the needs of the region and the state.

Educational Partnerships

- Effectiveness of common forms and materials for consortial agreements is assessed.

Integrated Evaluation and Improvement Strategies

- The distance learning group reassesses its role and operation and recommends needed action.

Appropriate Technologies

- Individual institutions assess the effectiveness of their support service procedures for distant learners.

ONGOING ACTIVITIES

- The CBHE and the institutions build stronger ties with business and economic development concerns to increase links between industry and institutions and better sense the education needs of the state.
- The new distance learning planning group addresses emerging issues in distance education.
- Institutions and partnerships evaluate their progress and effectiveness.
- The CBHE offers guidance to constituencies that lack a formal means of access.
- Urge librarians to agree on a common platform and phase in move to single library platform as current platforms expire.

- Institutions perform needs assessment.
- The CBHE and institutions foster the creation of CINs.
- The CBHE works with the Attorney General to strengthen consumer protection in distance learning.
- The CBHE, state agencies, and education providers promote adoption of and monitor technical standards, adopting revised standards as appropriate.
- Institutions develop and adhere to articulation agreements that encompass programs and courses delivered by telecommunications.

VIII. UNANSWERED QUESTIONS

Although certainly not comprehensive, this list includes issues raised by the resource group and its affinity groups that will require further consideration. These issues, and others, could be addressed by the new distance education planning group recommended in this report.

Access and learner-centered education

- How can we further expand access for place-bound learners, such as the physically disabled, parents of small children, etc.?
- How can we ensure that a learner who has not yet declared an intent to pursue a degree or certificate will have access to needed support services?
- What is the state's consumer protection responsibility to learners with regard to providing information on accredited or non-accredited courses, programs and institutions? How should this be handled?
- Should institutional residency requirements be reconsidered with regard to distant students?
- Are legislative changes necessary to allow the Public Service Commission to enable MOREnet to provide voice and video transmission?

Transfer and articulation

- Will increased use of asynchronous and self-paced learning make the sixteen-week semester less important? How might this impact the assignment of credit hours to courses?
- Should there be more emphasis placed on skills and competencies, rather than seat time, when evaluating transfer credits?
- Will the policies governing correspondence courses be applied to all distance education courses?

Financial aid

- In-state and out-of-state students who might enroll in telecommunications courses in multiple states will be a concern. Consortium agreements may be quite different and possibly more difficult to administer for these students.

Assessment

- How might a shift from a course credit model to a performance standard model affect assessment?

Faculty support

- How does teaching through telecommunications affect faculty teaching load?
- What role can faculty play in shaping institutional decisions about distance learning through telecommunications?
- By what methods and through what means can enhanced instructional technologies accommodate and support different teaching styles?
- How can faculty foster disciplinary associations across institutional lines to create better understanding and some common curricular ground between institutions?

APPENDIX A

Members of the Resource Group

Members of the Resource Group

Public Four-year Colleges and Universities

Dean L. Hubbard, President, Northwest Missouri State University
John H. Keiser, President, Southwest Missouri State University
Richard Wallace, Vice President for Academic Affairs, University of Missouri

Public Two-year Community Colleges

Richard Black, President, St. Louis Community College-Meramec
Kent Farnsworth, President, Crowder College

Private Colleges

Ed Strong, President, Culver-Stockton College
Marianne Inman, President, Central Methodist College

State Librarian

Sara Parker, State Librarian

CBHE Appointments to VIDEO Committee and Campus Representatives

Tom Brenneman, Director, Interactive Video Network, University of Missouri-Kansas City
Donald Doucette, Vice Chancellor of Educational Services and Instructional Technology, Metropolitan Community Colleges
Sheila Caskey, Dean of Graduate Studies, Southeast Missouri State University

APPENDIX B

Appointed Advisors for the Resource Group

Appointed Advisors for the Resource Group

Ryan Burson, State Demographer

Ralph Caruso, Chief Information Officer,
University of Missouri Central Administration

Tim Haithcoat, Director, Geographic Information Resources Center
University of Missouri-Columbia

Daryl Hobbs, Director, Office of Social and Economic Data Analysis,
University of Missouri-Extension Division

Bill Mitchell, Director
MOREnet

Deborah Sutton, Director of Special State Instructional Programs
Department of Elementary and Secondary Education

APPENDIX C

Affinity Groups, Additional Advisors and Contributors

Affinity Groups, Additional Advisors and Contributors

Existing affinity groups

Business officers of the public two- and four-year institutions
CBHE Transfer and Articulation committee (public two- and four-year institutions; independent institutions)
Chief academic officers of the public four-year institutions
Institutional researchers (public two- and four-year institutions; independent institutions)
Librarians of the public two- and four-year institutions
Missouri Assessment Consortium (public four-year institutions)
Missouri Association of Faculty Senates (public four-year institutions)
Missouri Association of Student Financial Aid Personnel (public two- and four-year institutions; independent and proprietary institutions)

Membership of specially created groups, subgroups, or expanded groups

Assessment coordinators

John Cosgrove, St. Louis Community Colleges
Marilyn Ehlert, Missouri Valley College
Mike Grelle, Central Missouri State University
Dennis Holt, Southeast Missouri State University
Dominic Soda, Lindenwood College
Charles Van Middlesworth, Metropolitan Community Colleges

Chief academic officers

Neil George, Webster University
Bill Kennedy, East Central College
Mary Phyfer, Three Rivers Community College
Marvin Querry, University of Missouri-Kansas City
James Roever, Missouri Western State College
Sister Patricia Throw, Maryville University

Continuing education

Sheila Caskey, Southeast Missouri State University
Bob Chizek, Moberly Area Community College
John Dubinsky, William Woods University
Pam McIntyre, St. Louis Community College at Meramec
Richard New, Northwest Misouri State University
Tom Schmitt, Columbia College
Wendell Smith, University of Missouri-St. Louis

Faculty senates
Jeanie Crain, Missouri Western State College
Garry Gordon, Northeast Missouri State/Truman State University
Ken Luebbering, Lincoln University
Rhonda Ridinger, Southwest Missouri State University

Financial aid

Laura Archuleta, William Woods University
Hal Deuser, Saint Louis University
Jeff Ford, Three Rivers Community College
Pam Fowler, Sanford Brown College
Herb Gross, St. Louis Community College at Forest Park
Todd Morriss, Southwest Missouri State University
Phil Shreves, Central Missouri State University
Jim Wyant, DeVry Institute of Technology

Librarians

Joan Clarke, St. Charles Community College
Cathye Bunch Dierberg, St. Louis Community College (campus?)
Jean Eisenman, University of Missouri-Rolla
Rita Gulstad, Central Methodist College
Karen Horny, Southwest Missouri State University
Pal V. Rao, Central Missouri State University
George Rickerson, University of Missouri central administration

Student services

Don Arripoli, Southwest Missouri State University
David Braverman, Culver-Stockton College
Brian Corpening, St. Louis Community College at Florissant Valley
Leslye Ellison, Saint Louis University
Ron Gerstbauer, North Central Missouri College
Sandy MacLean, University of Missouri-St. Louis

Technology subcommittee

Tom Brenneman, University of Missouri-Kansas City
Scott Christianson, Central Methodist College
Don Doucette, Metropolitan Community Colleges
Tim Gilmour, Northwest Missouri State University
Bill Mitchell, MOREnet

Additional advisors and contributors

Mike Benzen, Chief Information Officer of the state
Gerald Brouder, Columbia College
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Karen Luebbert, Webster University
Ron Manning, Northeast Missouri State University
Michael McManis, Northeast Missouri State University
Richard Meyers, Webster University
John Park, University of Missouri-Rolla
Marvin Querry, University of Missouri-Kansas City
Jim Roever, Missouri Western State College
Art Rosser, Central Missouri State University
Wendell Smith, University of Missouri-St. Louis
Duane Sterling, Central Missouri State University
Michael VanderVelde, Missouri College

APPENDIX D

Distance Education Programs as of March 1996

DISTANCE EDUCATION PROGRAMS AS OF MARCH 1996

Degree level and name	Institution(s) granting degree	Receiving institution	Geographic location of student access
Programs listed as cooperative in CBHE program inventory			
MSN Nursing	UM-KC	UM-SL	St. Louis
PhD Physics	UM-R	UM-SL	St. Louis
BSN Nursing	UM-SL	UM-R	Rolla
PhD ND Nursing	UM-SL UM-KC UM-C	UM-SL UM-KC UM-C	St. Louis Kansas City Columbia
BSCIE Civil Engineering	UM-SL (coop with Washington University)	UM-SL	St. Louis
BSEE Electrical Engineering	UM-SL (coop with Washington University)	UM-SL	St. Louis
BSME Mechanical Engineering	UM-SL (coop with Washington University)	UM-SL	St. Louis
AAS Drafting Technology	Southwest Missouri State-West Plains	West Plains AV/ Tech	West Plains
AAS Manufacturing Machine Technology	Southwest Missouri State-West Plains	West Plains AV/ Tech	West Plains
AAS Welding Technology	Southwest Missouri State-West Plains	West Plains AV/ Tech	West Plains
Programs delivered off-site to different institutions, industrial and cultural sites, etc. (does not include programs delivered to high schools or correctional facilities)			
MS Chemical Engineering	UM-C	UM-KC	Kansas City
BSCIE and MS Civil Engineering	•	•	•
BSEE and MS Electrical Engineering	•	•	•
MS Industrial Engineering	•	•	•
MS Mechanical and Aerospace Engineering	•	•	•

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BSME Mechanical Engineering	•	•	•
MS Nuclear Engineering	•	•	•
MSN Nursing	UM-KC	Missouri Southern	Joplin
•	•	Missouri Western	St. Joseph
MS Engineering Management	UM-R	Southwest Missouri State	Springfield
•	•	Union Electric Plant	Fulton
•	•	Truman Education Center	Fort Leonard Wood
PhD Biology	UM-SL	Missouri Botanical Gardens	St. Louis
BFA Studio Art	•	St. Louis Community College	St. Louis
MS Industrial Hygiene	Central Missouri State	Forest Park CC	St. Louis
MS Industrial Safety Management	•	•	•
•	•	Whiteman Air Force Base	Knob Noster
•	•		Albuquerque NM
•	•	MCC Business & Technology Center	Kansas City
•	•	UM-KC (KCEDNET)	Kansas City/St. Joseph
BS Safety Management	•	•	•
MS Aviation Safety	•	TWA	•
•	•	Whiteman Air Force Base	Knob Noster
BS Social Work	•	Longview CC	Kansas City
MBA Business Administration	•	Harmon Training Center	Blue Springs
MS Gerontology	•	Shalom Geriatric Center	Kansas City
MS Criminal Justice	•	UM-KC (KCEDNET)	Kansas City/St. Joseph

BS Nursing	"	State Fair CC	Sedalia
BS Criminal Justice	Harris-Stowe		Metro St. Louis
MSEd Adm and Super/ Elementary Principal	Northwest Missouri State	Missouri Western	St. Joseph
MSEd Adm and Super/ Secondary Principal	"	"	"
MS Counseling Psychology	"	"	"
MSEd Guidance and Counseling	"	"	"
MBA Business Administration	"	"	"
EDS Principal/ Elementary	"	"	"
EDS Principal/ Secondary	"	"	"
MS School Computer Studies/ Jr. College	"	"	"
MS School Computer Studies/ Secondary	"	"	"
EDS Superintendent	"	"	"
EDS Supervisor/ Director	"	"	"
MSEd Teaching Middle/ Jr. High	"	"	"
BSN Nursing	Southeast Missouri State	Three Rivers CC	Poplar Bluff
BS Interdisciplinary Studies	"	"	"
MSEd Elementary Education	"	Missouri Southern	Joplin
AAS Business	Southwest Missouri State-West Plains	Southwest Missouri State	Springfield

ADN Nursing one cycle only--pilot	East Central	Rolla Technical Institute	Rolla
OTA Occupational Therapy Assistant one cycle only--pilot	St. Louis Community College	East Central	Union
•	•	Rolla Technical Institute	Rolla
PTA Physical Therapy Assistant one cycle only--pilot	•	East Central	Union
•	•	Rolla Technical Institute	Rolla
BA/BS Accounting	Central Methodist	East Central	Union
BS Business Administration	•	•	•
BS Criminal Justice	•	•	•
MA Elementary Education	•	•	•
BSN Nursing	•	•	•
BS Public Service	•	•	•
BA/BS Accounting	Central Methodist	Mineral Area College	Park Hills
BS Business Administration	•	•	•
BS Criminal Justice	•	•	•
MA Elementary Education	•	•	•
BSN Nursing	•	•	•
BS Public Service	•	•	•
BA/BS Business Administration	Columbia College	Moberly	Moberly
BA Individual Studies	•	•	•
BS Administration of Justice	Missouri Baptist College	Jefferson College	Hillsboro

BS Business Administration	•	•	•
BS Computer and Information Systems	•	•	•
BSN Nursing (completion)	•	•	•
BA Business Administration	Stephens College		statewide
BS Education, Early Childhood	•		•
BS Education, Elementary	•		•
BA English	•		•
BA Health Care	•		•
BS Health Information Management	•		•
BA Philosophy, Law and Rhetoric	•		•
BA Psychology	•		•
BA/BS Student-initiated major	•		•

APPENDIX E

MOREnet and Missouri's Video Networks as of March 1996

MOREnet and Missouri's Video Networks as of March 1996

INTERNET/MOREnet

MOREnet Affiliates
K-12 Dedicated Connections
K-12 Dial-Up Connections
Remote Electronic Access for Libraries (REAL)

VIDEO NETWORKS

Statewide

Missouri's Video Networks
Network Details
State of Missouri Integrated Voice and Data Network
Missouri Telemedicine Network

Regional

UMKC Interactive Video Network
St. Louis EdNet
Southwest Missouri State University Video and Data Networks

SATELLITE DOWNLINKS

University of Missouri Extension Satellite Downlink Sites

MOREnet Affiliates

- Community Information Networks
- Missouri Government
- Higher Education Institutions
- K-12 Schools
- Libraries
- Others

Community Information Networks

- Columbia Online Information Network
- Lebanon-Laclede Information Online Network
- Ozarks Regional Information Online Network
- Rural Area Information Network (Pilot Grove)
- Westplex Information Network

Missouri Government

- Coordinating Board for Higher Education
- Department of Elementary and Secondary Education
- Missouri State Library
- Office of Administration - Data Processing and Telecommunications

Higher Education Institutions

- Avila College
- Central Methodist College
- Central Missouri State University
- College of the Ozarks
- Columbia College
- Cottey College
- Crowder College
- Culver-Stockton College
- Drury College
- East Central College
- Evangel College
- Hannibal-LaGrange college
- Harris-Stowe State College
- Jefferson College
- Kirksville College of Osteopathic Medicine
- Lincoln University
- Maryville University
- Metropolitan Community Colleges
- Mineral Area College

Missouri Southern State College
Missouri Western State College
Moberly Area Community College
National College
North Central Missouri College
Northeast Missouri State University
Northwest Missouri State University
Ozarks Technical Community College
Southeast Missouri State University
Southwest Baptist University
Southwest Missouri State University
St. Charles Community College
St. Louis Community College
State Fair Community College
Stephens College
Three Rivers Community College
University of Health Sciences
University of Missouri System
University of Missouri-Columbia
University of Missouri-Kansas City
University of Missouri-Rolla
University of Missouri-St. Louis
Westminster College
William Jewell College
William Woods University

Libraries

Springfield-Greene County Library District
Daniel Boone Regional Library (Columbia)
Kinderhook Regional Library (Lebanon)
Linda Hall Library (Kansas City)
Missouri State Library (Jefferson City)

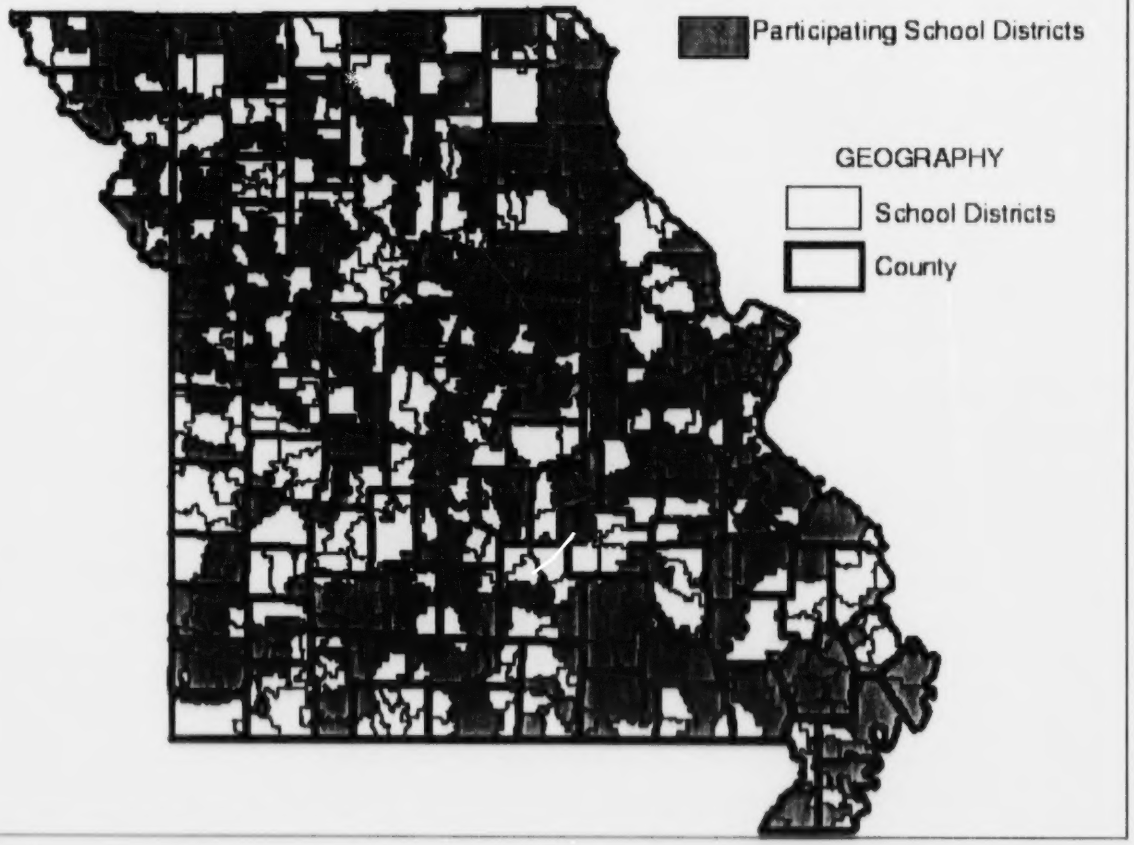
Others

Allied Signal Aerospace Corp. (Kansas City)
City of St. Peters
Community Resources Network, Inc. (Kansas City)
Cooperating School Districts/RCET (St. Louis)
Manufacturer's Enterprise Corp. (Kansas City)
Missouri School Boards Association (Columbia)
Missouri State Teachers Association (Columbia)
National Severe Storms Forecast Center (Kansas City)
National Weather Service-Pleasant Hill
National Weather Service-St. Charles
Pan Educational Institute (Independence)

Dedicated Connections

MO DESE Technology Network Project

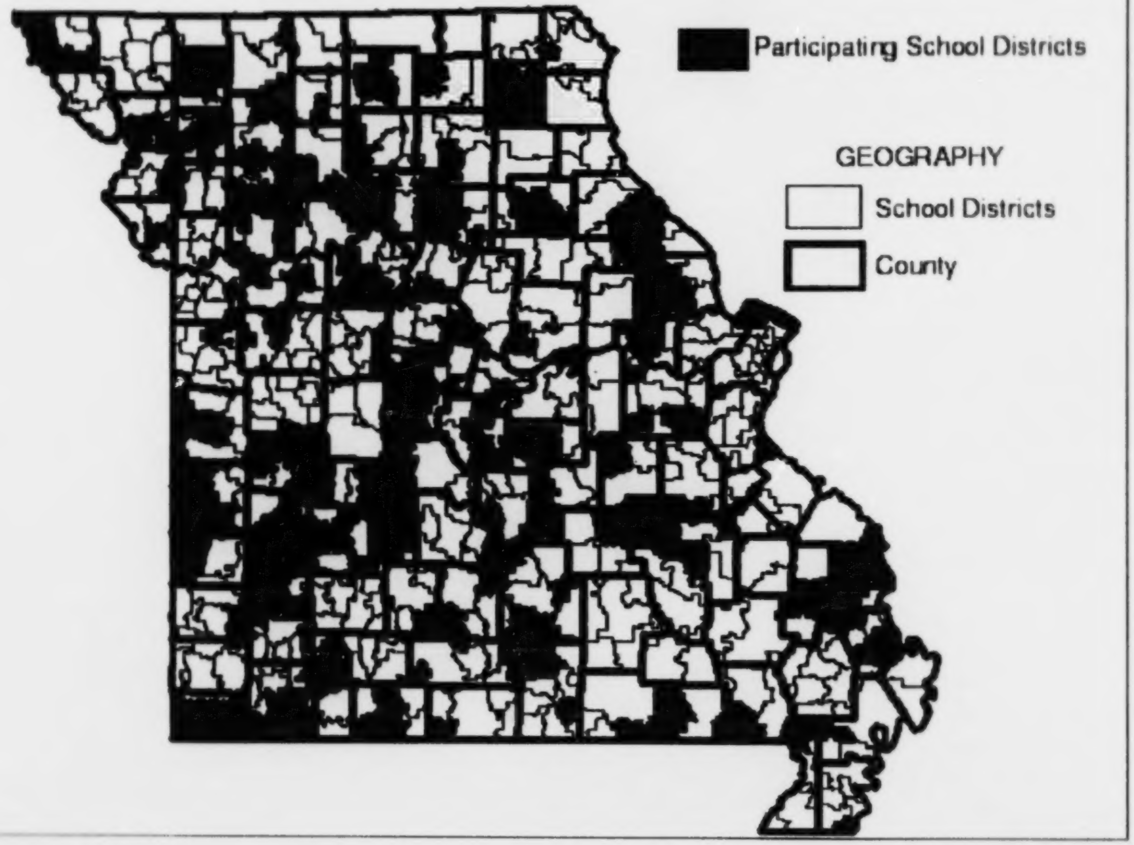
October, 1995


Participating School Districts
GEOGRAPHY
School Districts
County

Dial-Up Connections

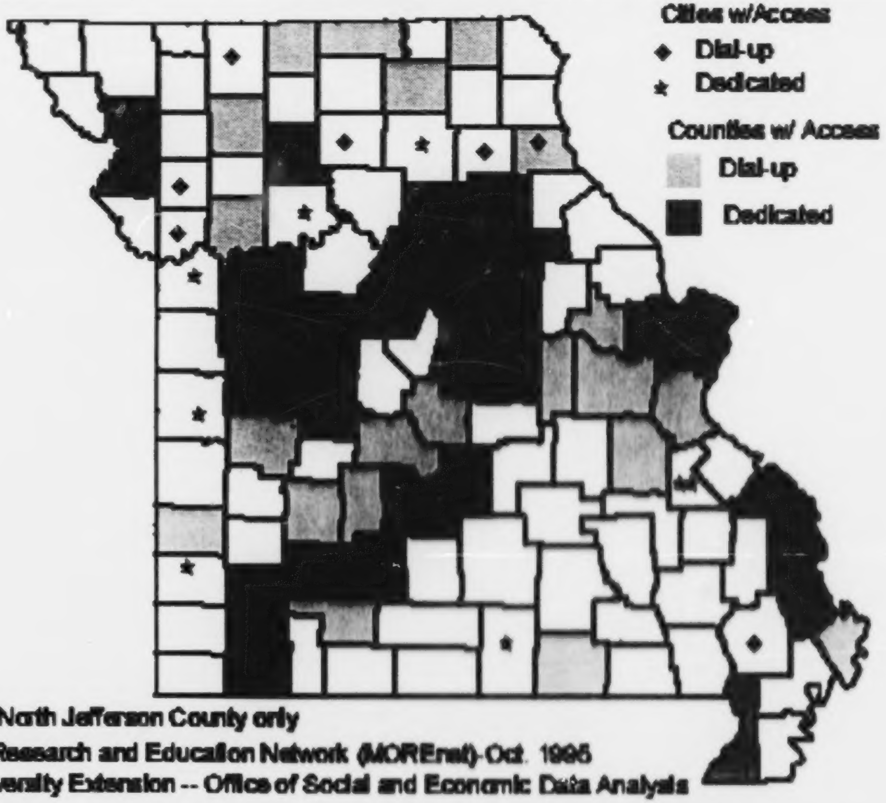
MO DESE Technology Network Project

October, 1995


Participating School Districts
GEOGRAPHY
School Districts
County

Remote Electronic Access for Libraries (REAL)

Participants FY96


Cities w/Access
◆ Dial-up
★ Dedicated
Counties w/ Access
▨ Dial-up
■ Dedicated

Note: Access in North Jefferson County only

Source: Missouri Research and Education Network (MOREnet)-Oct. 1995

Produced By: University Extension -- Office of Social and Economic Data Analysis

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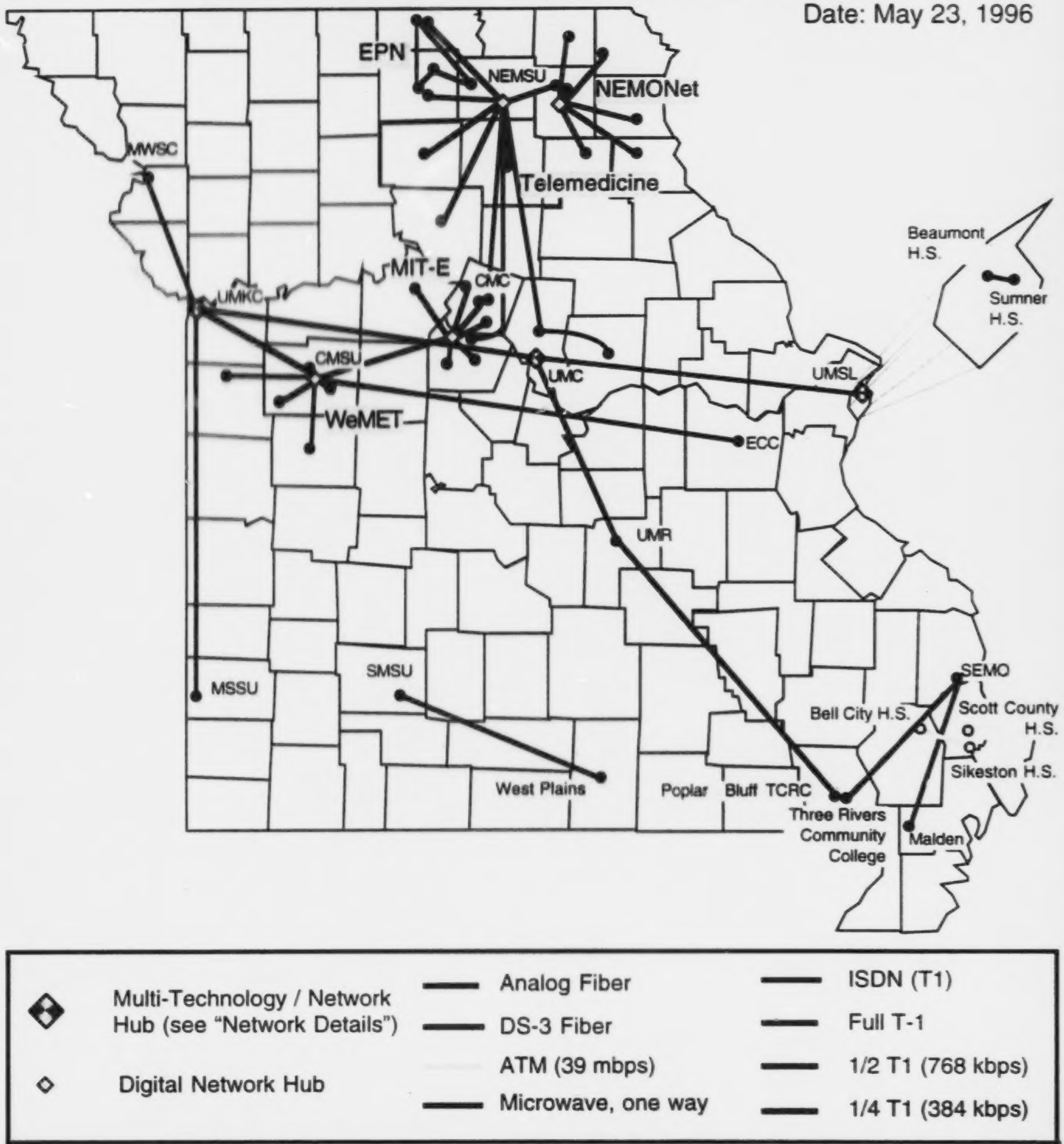
Missouri's Video Networks
Dedicated Connections

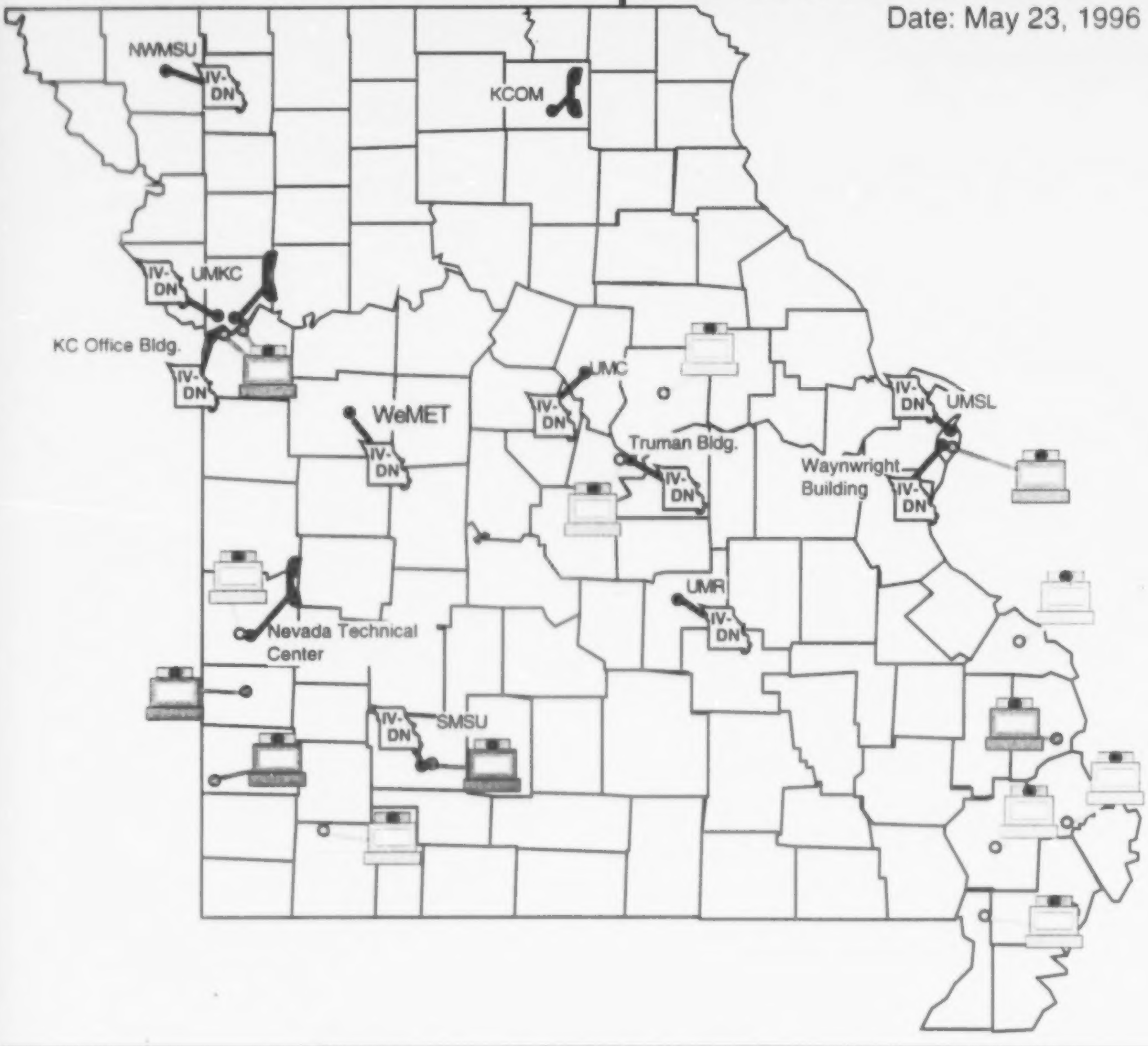
Date: May 23, 1996


EPN
NEMSU
NEMONet
MWSC
Telemedicine
Beaumont H.S.
Sumner H.S.
MIT-E
CMC
UMKC
CMSU
UMC
UMSL
WeMET
ECC
UMR
SMSU
MSSU
SEMO
Bell City H.S.
Scott County H.S.
Sikeston H.S.
West Plains
Poplar Bluff TCRC
Three Rivers Community College
Malden
◆ Multi-Technology / Network Hub (see "Network Details")
◇ Digital Network Hub
Analog Fiber
DS-3 Fiber
ATM (39 mbps)
Microwave, one way
ISDN (T1)
Full T-1
1/2 T1 (768 kbps)
1/4 T1 (384 kbps)

Compiled by J. Scott Christianson for the MO I-TV Information Alliance K-12 Users Group; see attached sheet for network details and contact information. Permission is granted to reproduce and distribute freely with acknowledgement. Newest version is available via www at http://cmc2.cmc.edu/survey.html

Missouri's Video Networks IVDN and Dial-Up Connections

Date: May 23, 1996


NWMSU
IV-DN
KCOM
IV-DN
UMKC
KC Office Bldg.
IV-DN
WeMET
IV-DN
UMC
IV-DN
Truman Bldg.
IV-DN
UMSL
IV-DN
Waynwright Building
IV-DN
UMR
IV-DN
Nevada Technical Center
IV-DN
SMSU

IV-DN	IVDN Video Connection.
☎	Dial-Up Connection. See "Network Details"
🖥	SWBT Desktop Video Trial (ISDN-BRI 128 kbps) — Single Site. See "Network Details" for location info
🖥	SWBT Desktop Video Trial (ISDN-BRI 128 kbps) — Multiple Sites. See "Network Details" for location info

Compiled by J. Scott Christianson for the MO I-TV Information Alliance K-12 Users Group; see attached sheet for network details and contact information. Permission is granted to reproduce and distribute freely with acknowledgement. Newest version is available via www at http://cmc2.cmc.edu/survey.html

Network Details

Page 1 of 2

Additional Linkages For Multi-Technology / Network Hubs

UMSL Connects to:
AT&T
SLCC System (Cable)
Jefferson College
St. Charles Community College
Coop. School Districts (ITFS)
Illinois State System

UMKC Connects to:
Penn Valley CC
KCPT
WDAF Teleport
KCP&L
Kansas State Network

UMC Connects to:
Telemedicine Project

Dial-Up Connections

UMKC
MCI Video-Net (T1)
SWBT Select Video Plus (T1)
Sprint Meeting Channel (T1)

Nevada Technical Center
MCI Video-Net (T1)

NEMSU
MCI (1/4 T)

K-12 Networks

EPN Network
Green City R-I
Milan C-2
Novinger
Putnam Co. R-I

MIT-E Network
Central Methodist College
Cooper Co. R-IV
Cooper Co. C-4
New Franklin
Howard Co. R-II
Slater

NEMONet
Knox County
Lewis Co. C-I
Marion Co. R-II
North Shelby
Scotland R-I
Wyaconda C-I

St. Louis City
Beaumont H.S.
Sumner H.S.

Sikeston R VI
Bell City H.S.
Sikeston H.S.
Scott County Central Schools

WeMET
Central Missouri State University
Clinton, #124
Holden R-III
Pleasant Hill R-III
Warrensburg R-VI

Telemedicine Project

Adair County
Kirksville College of Osteopathic Medicine
Kirksville Osteopathic Medical Center

Boone County
UM Health Sciences Center (Columbia)
Ellis Fischel Cancer Hospital (Columbia)

Callaway County
Callaway Community Hospital (Fulton)
Callaway Physicians (Fulton)

Chariton County
Keytesville Clinic (Keytesville)

Cooper County
Cooper County Memorial Hospital (Boonville)
University Physicians (Boonville)

Howard County
Fayette Medical Clinic

Linn County
Pershing Memorial Hospital (Brookfield)

Macon County
Samaritan Memorial Hospital (Macon)

Putnam County
Putnam County Memorial Hospital (Unionville)

Scotland County
Scotland County Memorial Hospital (Memphis)

Sullivan County
Sullivan County Memorial Hospital (Milan)

Integrated Voice Data Network Video Connections

Colleges and Universities
University of Missouri -Columbia
University of Missouri -Kansas
University of Missouri -St. Louis

Via UM Network to:
University of Missouri - Rolla
TCRC in Poplar Bluff

State Government
Kansas City Office Building
Waynwright Building (St. Louis)
Truman Building (Jefferson City)

Notes

1). Connection to East Central College is from Central Methodist College.

2). Does not include cable links in the metropolitan areas, the satellite uplinks at the four M.U. sites, school district and extension satellite downlinks.

3). State IVDN Connections are usually at 1/4 T (384kbps). Total bandwidth on IVDN lines are T1. Connection of the state IVDN network to the University of Missouri network allows for interconnectivity to all MU sites and connections.

4). This map was compiled by J. Scott Christianson and Mike Jeffries using available information; there is no guarantee of the accuracy of the connections shown. Contact the institution or network for more information about a particular site. Send all corrections, additions and requests for updates to either:

Mike Jeffries
WeMET Director
Humphreys 403 -CMSU
Warrensburg, MO 64093

J. Scott Christianson
Technical Coordinator
411 Central Methodist Square
Fayette, MO 65248

SWBT Desktop Video Trial

Location of Sites
St. Louis (3 Sites)
Creve Coeur (2 Sites)
Fulton
Cape Girardeau (2 Sites)
Sikeston
Maiden
Peeryville
Dexter
Jefferson City
Nevada
Joplin (2 Sites)
Springfield (2 Sites)
Lamar (2 Sites)
Monett
Independence (6 Sites)
Kansas City

Network Details

Contact Information — Institutions

Central Methodist College
J. Scott Christianson
Technical Coordinator
411 Central Methodist Square
Fayette, MO 65248
jsc@igc.apc.org

Central Missouri State University
Dale Carder
Office of Extended Campus
Humphreys 404 - CMSU
Warrensburg, MO 64093
dcarder@cmsuvmb.cmsu.edu

East Central College
Don Hays
East Central College
P.O. Box 529
Union, MO 63084

Nevada Technical Center
Alan Kenyon
Nevada Technical Center
P.O. Box 807
Nevada, MO 65772

NEMSU
Janet Brandau
Kirksville College of Osteopathic Medicine
800 West Jefferson
Kirksville, MO 63501

Southeast Missouri State University
Sheila Caskey
Southeast Missouri State University
One University Plaza
Cape Girardeau, MO 63701
C349GRA@SEMOVM.SEMO.EDU

Southwest Missouri State University
Gary Ellis, Director
Media Based Instruction
901 South National Avenue
Springfield, MO 65804

University of Missouri - Columbia
David Dunkin
Academic Support Center
505 E. Steward Road—UMC
Columbia, MO 65211

University of Missouri - Kansas City
Tom Brenneman, Director
Interactive Video Network
301 Fine Arts Building — UMKC
Kansas City, MO 64110

University of Missouri - St. Louis
Doug Clapp, Director
Instructional Technology Center
113 Lucas Hall — UMSL
8001 Natural Bridge Road
St. Louis, MO 63042

University of Missouri - Rolla
Ross Haselhorst, Manager
Video Communications Center
1870 Miner Circle
Rolla, MO 65409

Telecommunications Community Resource Center
Judy Moss
Poplar Bluff (TCRC)
mossj@ext.missouri.edu

Contact Information — Networks

Beaumont — Sumner
Philip Brody
Director of Technology
911 Locust St.
St. Louis, MO 63101

EPN
Nancy Steele
EPN Director
Putnam County R-I
Rt 3, Box 15
Unionville,MO 63565

MITE
Vicki Hobbs
MITE Director
4001 South Coats Lane
Columbia, MO 65203

IVDN
Chris Wilson
Truman Building, Suite 280
Jefferson City, MO 65101

NEMONet
Dan O'Donnell
Superintendent
Scotland Co. R-I
P.O. Box 337
Memphis, MO 63555

Sikeston — Bell City
Dr. Arnold Bell
Sikeston R-VI
1002 Virginia
Sikeston, MO 63801-3347

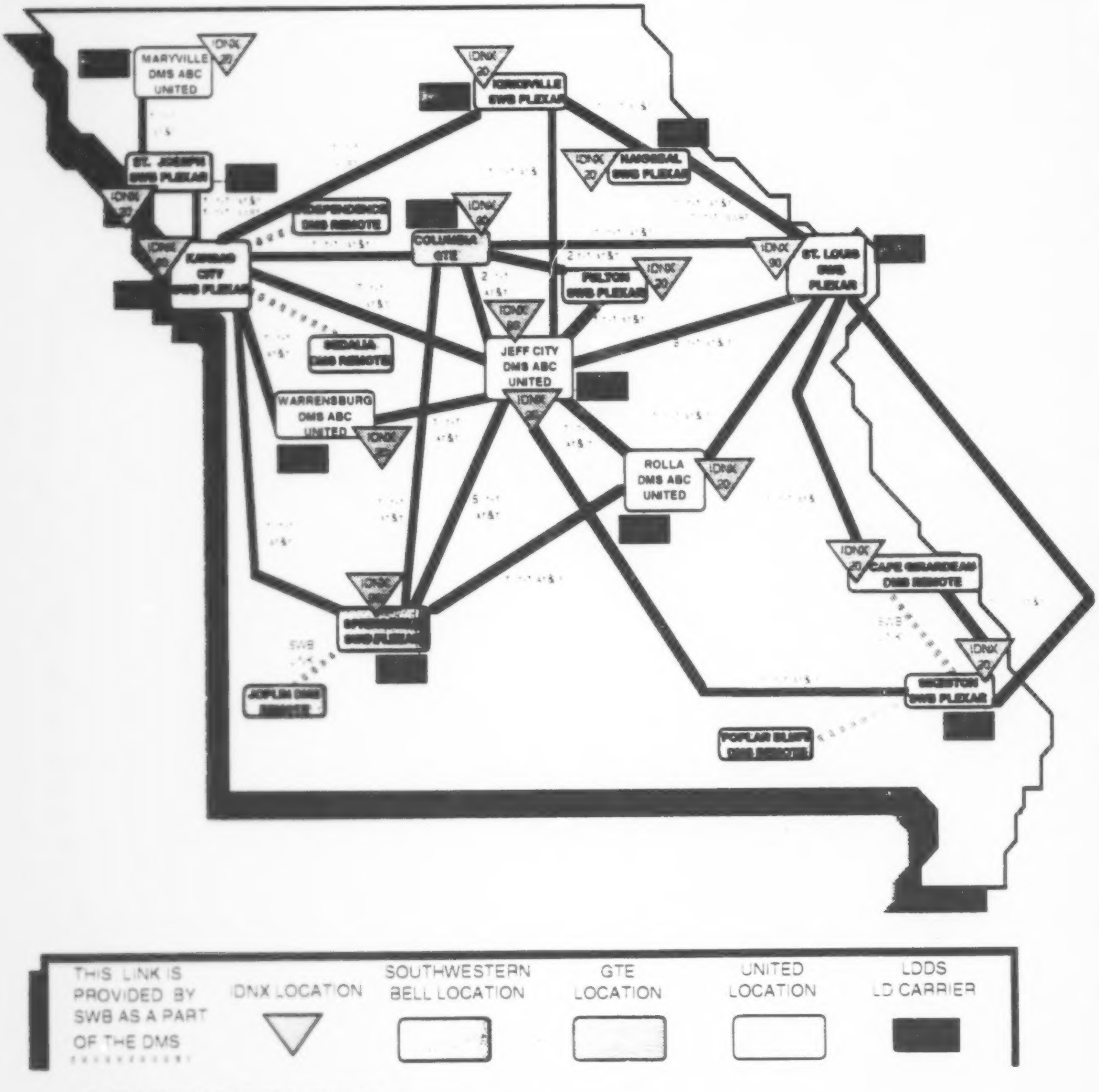
SWBT Desktop Video Trial
Robert Trottmann
SWBT
100 North Tucker
St. Louis, MO 63101

Telemedicine
Joe Tracy
Director, Telemedicine Project
University of Missouri -Columbia
Old Alumni Building
Columbia, MO 65212

University of Missouri
Coleman Burton, Director
University Telecommunications
215 University Hall — UMC
Columbia, MO 65211

WeMET
Mike Jeffries
WeMET Director
Humphreys 403 - CMSU
Warrensburg, MO 64093
jeffries@cmsuvmb.cmsu.edu

STATE OF MISSOURI
INTEGRATED VOICE & DATA NETWORK


MARYVILLE DMS ABC UNITED
IDNX 20
KIRKSVILLE SWB FLEXAR
ST. JOSEPH SWB FLEXAR
HANNIBAL SWB FLEXAR
INDEPENDENCE DMS REMOTE
COLUMBIA GTE
KANSAS CITY SWB FLEXAR
ST. LOUIS SWB FLEXAR
FULTON SWB FLEXAR
SEDALIA DMS REMOTE
JEFF CITY DMS ABC UNITED
WARRENSBURG DMS ABC UNITED
ROLLA DMS ABC UNITED
CAPE GIRARDEAU DMS REMOTE
SWB FLEXAR
SWB
JOPLIN DMS REMOTE
SIKESTON SWB FLEXAR
POPLAR BLUFF DMS REMOTE
THIS LINK IS PROVIDED BY SWB AS A PART OF THE DMS
IDNX LOCATION
SOUTHWESTERN BELL LOCATION
GTE LOCATION
UNITED LOCATION
LDDS LD CARRIER

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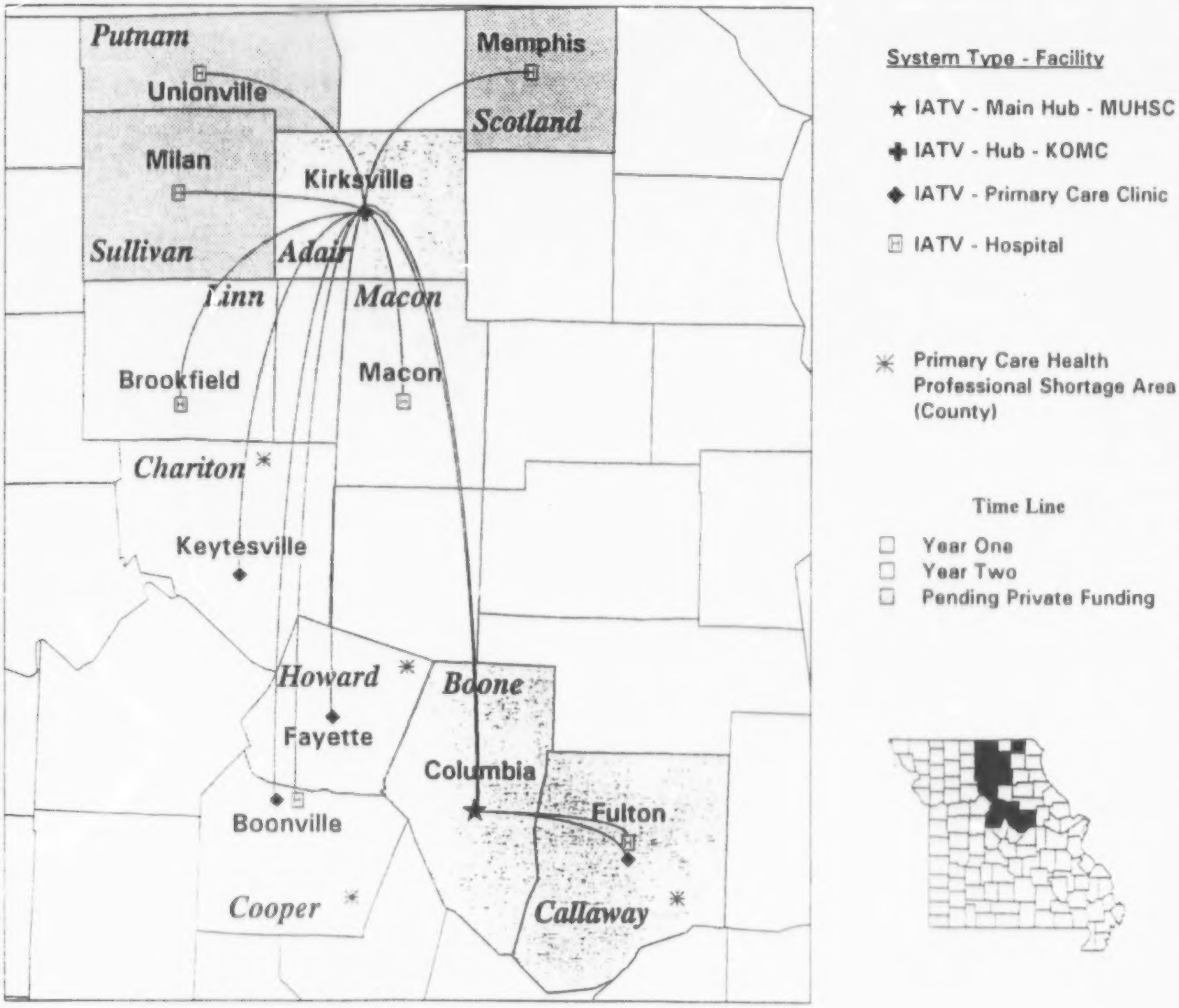
Missouri Telemedicine Network

Office of Rural Health Policy/Health Resources & Services Administration
University of Missouri Health Sciences Center
Missouri Public Service Commission - Taskforce on Telemedicine


Putnam
Unionville
Memphis
Scotland
Milan
Kirksville
Sullivan
Adair
Linn
Macon
Brookfield
Macon
Chariton
Keytesville
Howard
Boone
Fayette
Columbia
Boonville
Fulton
Cooper
Callaway
System Type - Facility
★ IATV - Main Hub - MUHSC
✚ IATV - Hub - KOMC
◆ IATV - Primary Care Clinic
⊟ IATV - Hospital
✳ Primary Care Health Professional Shortage Area (County)
Time Line
☐ Year One
☐ Year Two
☐ Pending Private Funding

Note: County name shown in italics.

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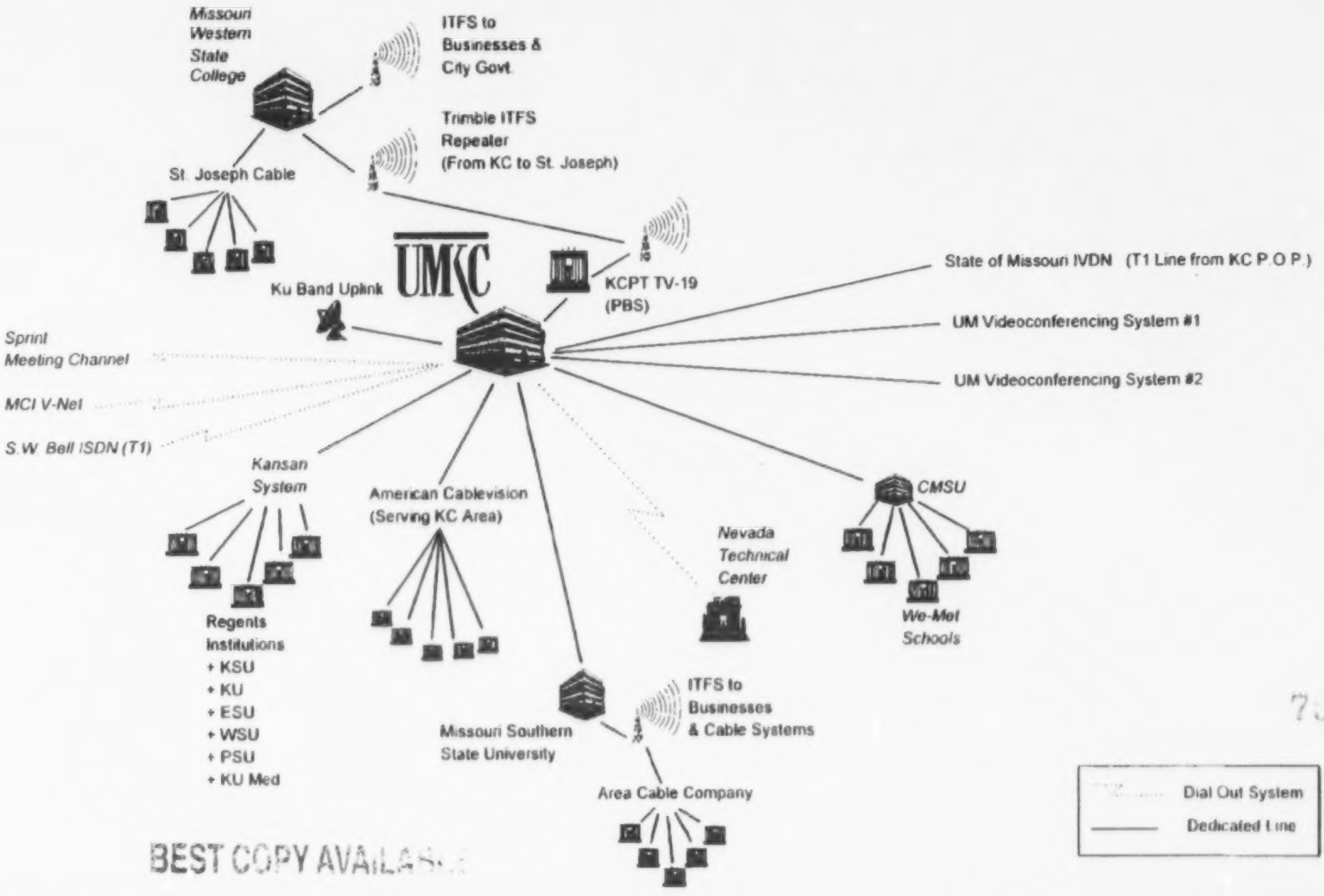
UM Kansas City Interactive Video Network



Missouri Western State College

ITFS to Businesses & City Govt.

Trimble ITFS Repeater (From KC to St. Joseph)

St. Joseph Cable

UMKC

Ku Band Uplink

KCPT TV-19 (PBS)

State of Missouri IVDN (T1 Line from KC P.O.P.)

UM Videoconferencing System #1

UM Videoconferencing System #2

Sprint Meeting Channel

MCI V-Net

S.W. Bell ISDN (T1)

Kansan System

Regents Institutions
- KSU
- KU
- ESU
- WSU
- PSU
- KU Med

American Cablevision (Serving KC Area)

Nevada Technical Center

CMSU

We-Met Schools

Missouri Southern State University

ITFS to Businesses & Cable Systems

Area Cable Company

Dial Out System

Dedicated Line

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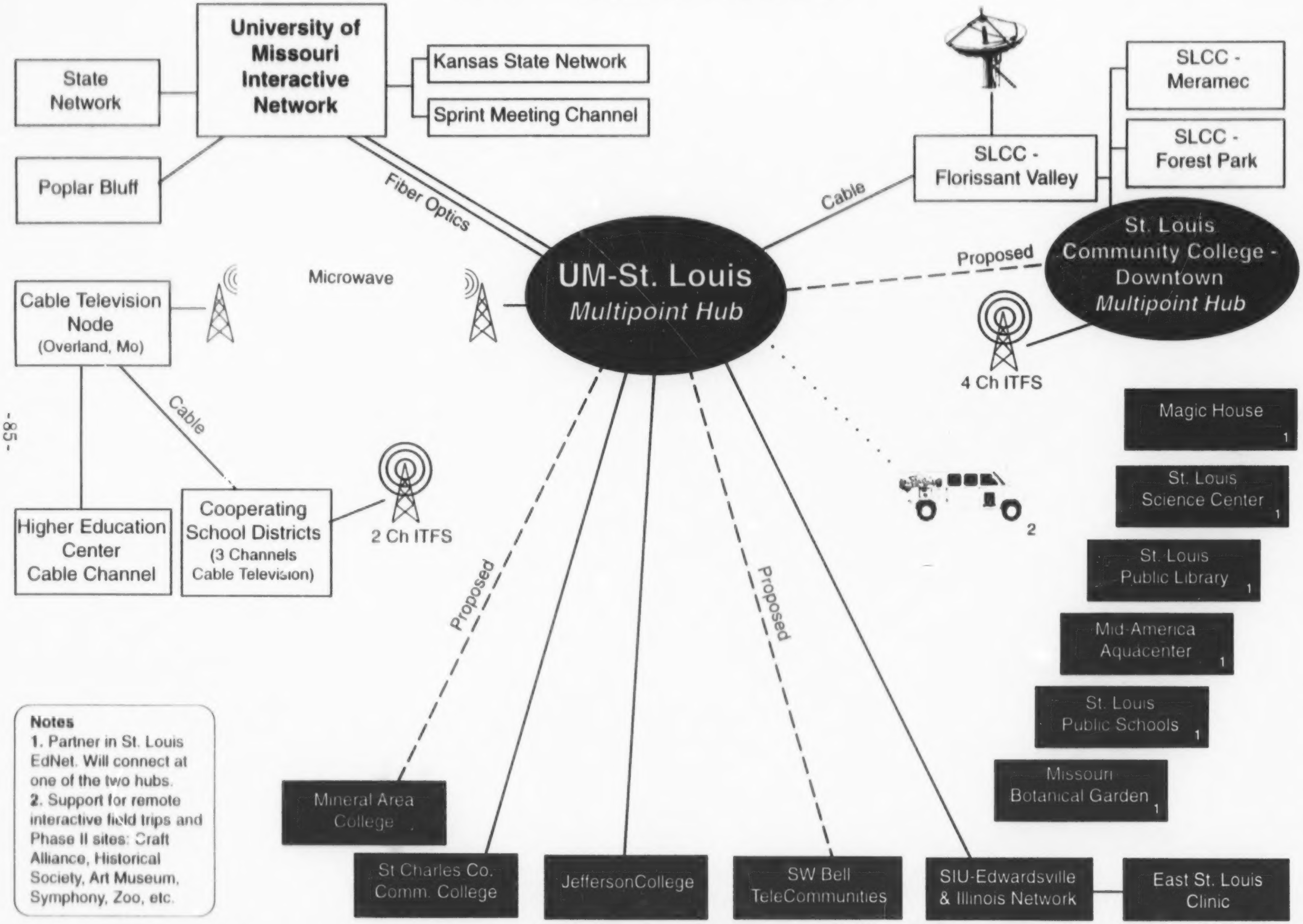
Thomas Brenneman (4/25/96)

St. Louis EdNet



State Network

University of Missouri Interactive Network

Kansas State Network

Sprint Meeting Channel

Poplar Bluff

Fiber Optics

SLCC - Meramec

SLCC - Forest Park

SLCC - Florissant Valley

Cable

St. Louis Community College - Downtown *Multipoint Hub*

Proposed

UM-St. Louis *Multipoint Hub*

Microwave

Cable Television Node (Overland, Mo)

Cable

4 Ch ITFS

Magic House 1

St. Louis Science Center 1

St. Louis Public Library 1

Mid-America Aquacenter 1

St. Louis Public Schools 1

Missouri Botanical Garden 1

2

Higher Education Center Cable Channel

Cooperating School Districts (3 Channels Cable Television)

2 Ch ITFS

Proposed

Proposed

Mineral Area College

St Charles Co. Comm. College

JeffersonCollege

SW Bell TeleCommunities

SIU-Edwardsville & Illinois Network

East St. Louis Clinic

Notes
1. Partner in St. Louis EdNet. Will connect at one of the two hubs.
2. Support for remote interactive field trips and Phase II sites: Craft Alliance, Historical Society, Art Museum, Symphony, Zoo, etc.

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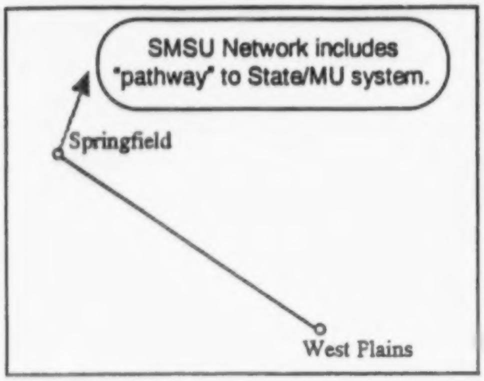
ATTACHMENT 1

SMSU Video and Data Networks

Figure 1: SMSU Video/Data network [current]


SMSU Network includes "pathway" to State/MU system.
Springfield
West Plains

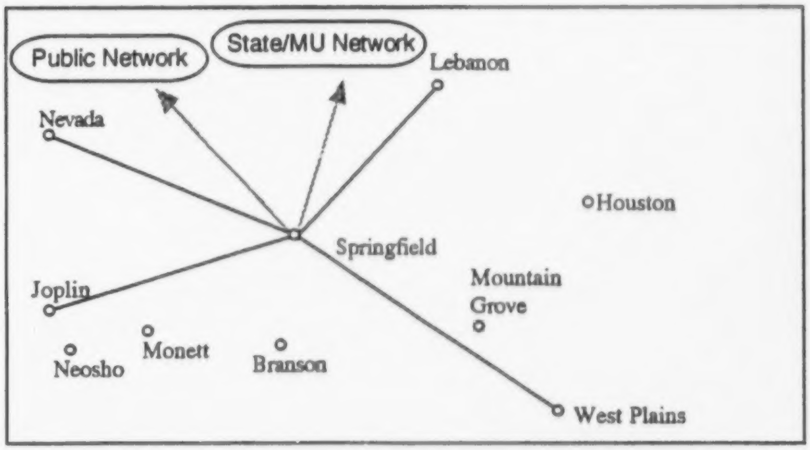
Full time interactive video and data link between the Springfield and West Plains campuses. Break and reconnect at IDNX to State/MU network.

Classrooms:

Springfield -	1
West Plains -	1
TOTAL:	2

Established:
January 1995

Figure 2: Fall 1996 Network Expansion


Public Network
State/MU Network
Lebanon
Nevada
Houston
Springfield
Mountain Grove
Joplin
Monett
Neosho
Branson
West Plains

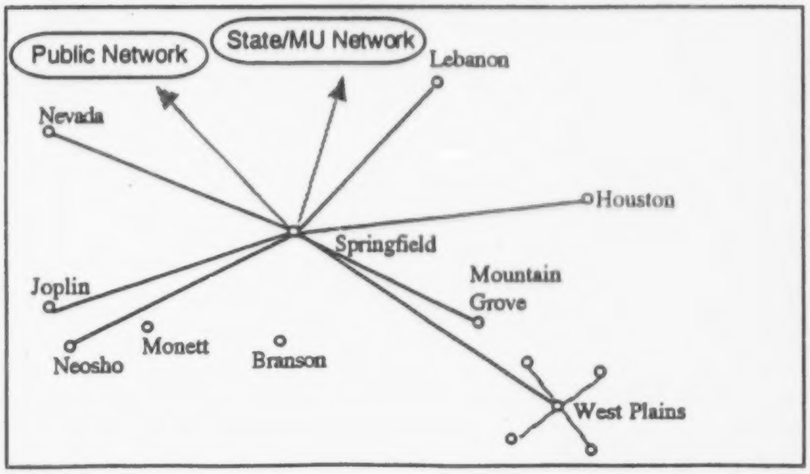
A Multipoint Control Unit (MCU) and Network Multiplexer required.

Classrooms:

Springfield -	1 to 2
West Plains -	1
Joplin -	1
Lebanon -	1
Nevada -	1
TOTAL:	5 to 6

Established:
by August 1996

Figure 3: Future Network Expansion phased in by Fall 1998


Public Network
State/MU Network
Lebanon
Nevada
Houston
Springfield
Mountain Grove
Joplin
Monett
Neosho
Branson
West Plains

Classrooms:

Springfield -	3-4
West Plains -	2
Houston -	1
Joplin -	1
Lebanon -	1
Neosho -	1
Nevada -	1
TOTAL:	10-11

Established:
by July 1998

ATTACHMENT 2
SMSU ISDN Video and Data Networks

Figure 4: Potential Network Layout Fall 1996 [August 1996]

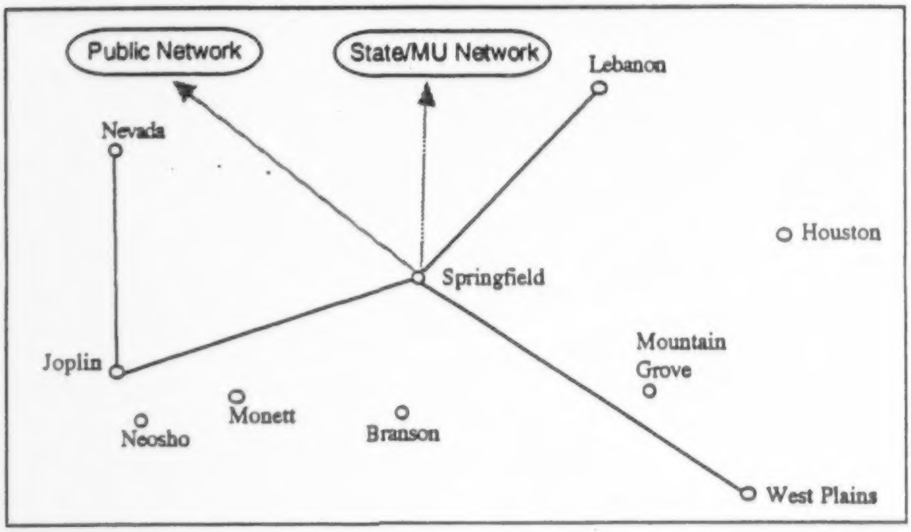
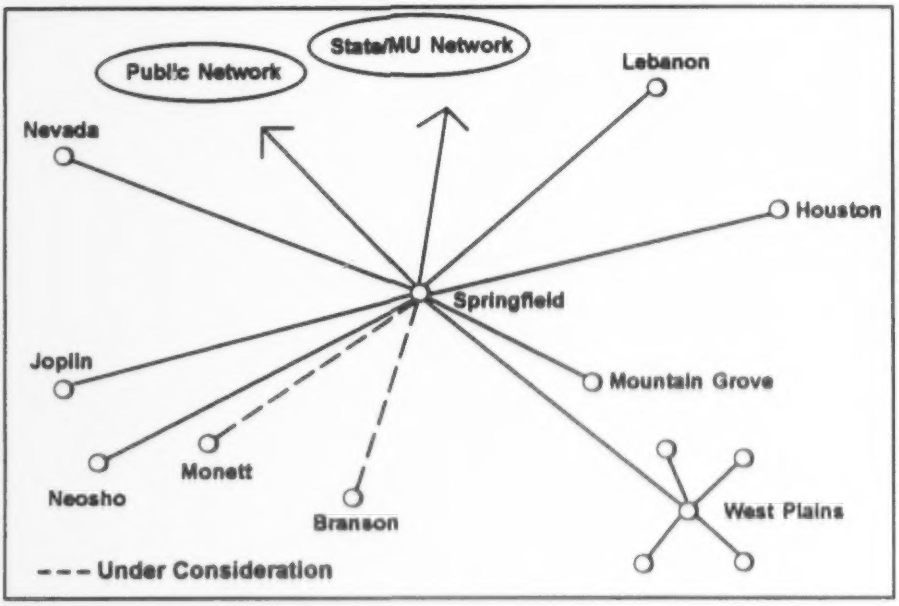

Public Network
State/MU Network
Lebanon
Nevada
Houston
Springfield
Mountain Grove
Joplin
Monett
Neosho
Branson
West Plains

Figure 5: Potential Network Layout Fall 1998 [August 1998]

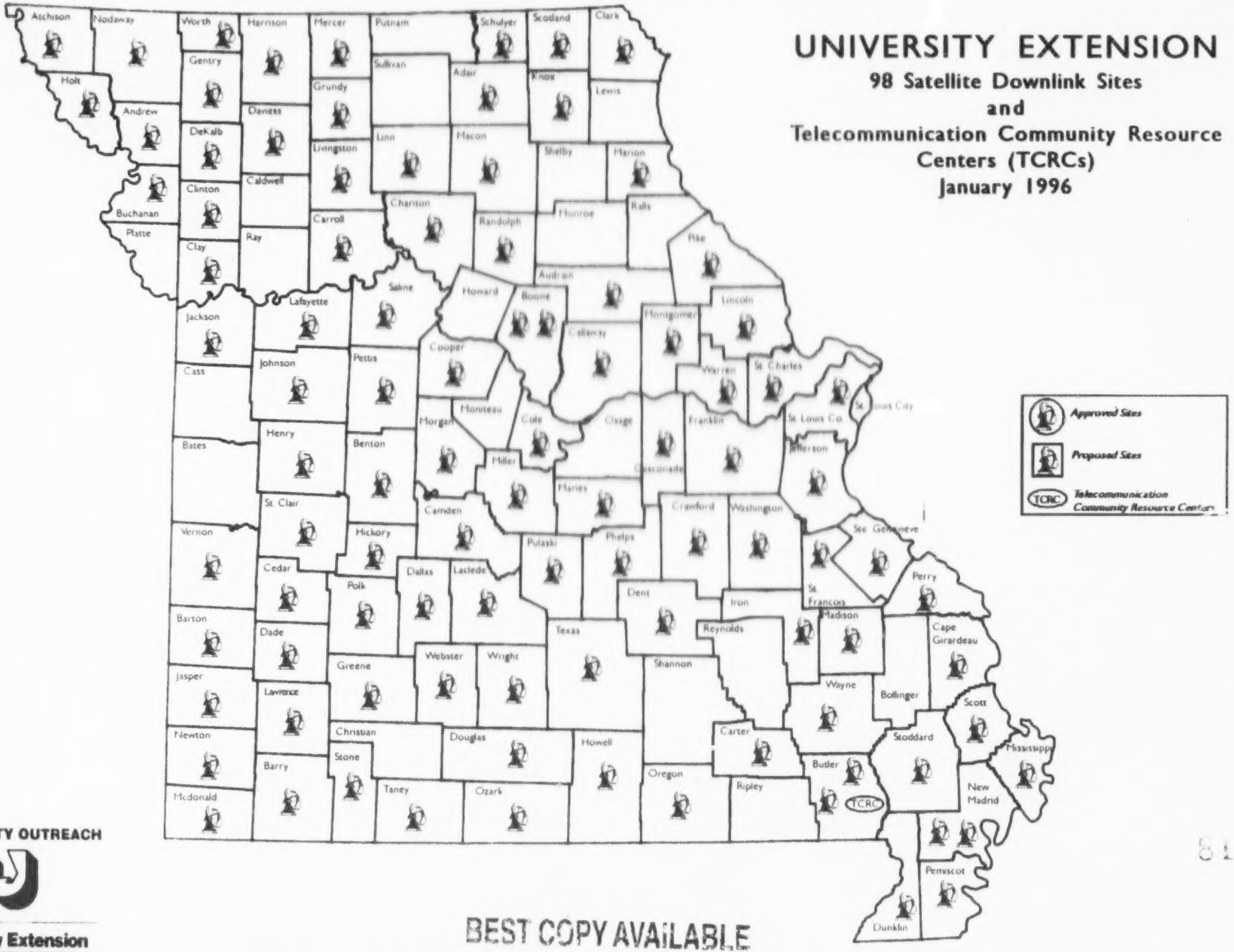

State/MU Network
Public Network
Lebanon
Nevada
Houston
Springfield
Joplin
Mountain Grove
Monett
Neosho
Branson
West Plains
--- Under Consideration

Classrooms:	
Springfield-	**4**
West Plains-	**2**
Houston-	**1**
Joplin-	**1**
Lebanon-	**1**
Neosho-	**1**
Nevada-	**1**
TOTAL	**11**

Established:
by July 1998

UNIVERSITY EXTENSION

98 Satellite Downlink Sites
and
Telecommunication Community Resource Centers (TCRCs)
January 1996


Atchison
Nodaway
Worth
Harrison
Mercer
Putnam
Schuyler
Scotland
Clark
Holt
Gentry
Sullivan
Adair
Knox
Lewis
Andrew
DeKalb
Daviess
Grundy
Linn
Macon
Shelby
Marion
Buchanan
Clinton
Caldwell
Livingston
Chariton
Randolph
Monroe
Ralls
Platte
Clay
Ray
Carroll
Pike
Audrain
Lafayette
Saline
Howard
Boone
Lincoln
Montgomery
Jackson
Johnson
Pettis
Cooper
Callaway
Warren
St. Charles
St. Louis Co.
St. Louis City
Cass
Moniteau
Cole
Osage
Franklin
Morgan
Miller
Gasconade
Jefferson
Bates
Henry
Benton
Maries
St. Clair
Camden
Crawford
Washington
Ste. Genevieve
Vernon
Hickory
Pulaski
Phelps
Cedar
Polk
Dallas
Laclede
Dent
Iron
St. Francois
Perry
Barton
Dade
Texas
Reynolds
Madison
Cape Girardeau
Jasper
Lawrence
Greene
Webster
Wright
Shannon
Wayne
Bollinger
Scott
Newton
Christian
Douglas
Howell
Carter
Stoddard
Mississippi
Barry
Stone
Butler
Mcdonald
Taney
Ozark
Oregon
Ripley
TCRC
New Madrid
Pemiscot
Dunklin
Approved Sites
Proposed Sites
TCRC Telecommunication Community Resource Centers

UNIVERSITY OUTREACH

University Extension
UNIVERSITY OF MISSOURI SYSTEM
LINCOLN UNIVERSITY

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APPENDIX F

Reports from Affinity Groups

Assessment Consortium
Business Officers
Chief Academic Officers
Continuing Education Deans
Faculty Senates
Financial Aid Officers (MASFAP)
Institutional Researchers
Librarians
Student Services
Technology Subcommittee
Transfer and Articulation Committee

Central
MISSOURI STATE UNIVERSITY

Office of Assessment and Testing Services
Humphreys 223
Warrensburg, MO 64093
816-543-4919
FAX 816-543-4959

APRIL 15, 1996

TO: TELECOMMUNICATIONS RESOURCE PLANNING GROUP

FROM: ASSESSMENT AFFINITY GROUP

RE: QUESTIONS RAISED BY ASSESSMENT COORDINATORS FROM MISSOURI'S TWO- AND FOUR-YEAR INSTITUTIONS CONCERNING THE TELECOMMUNICATION-BASED DELIVERY SYSTEM

The assessment coordinators from Missouri's two- and four-year institutions of higher learning met on April 9, 1996 to review the "Assessment Policy and Guidelines" statement that is included with this memo. At that meeting, the following questions and issues regarding the proposed telecommunications-based delivery system were discussed.

> Who will grant the degrees? The answer to this question drives who will be responsible for the assessment processes that are required. How will this be determined? To what extent will the development of modularized education and training needs fit into existing degree programs?
>
> How are "best" teachers determined? Does the "best lecturer" meet the needs of programs at all institutions? Does the "type" of learning in a telecommunications-based delivery system differ from the "type" of learning in a campus-based delivery system?
>
> How does teaching in the telecommunications system affect faculty load? Will there be reimbursement and development expenses from the state? How will administration be handled? Will it be centralized or decentralized? Will it be by offering or program area or everything?
>
> How does general education fit into this? Specifically, what about programs that have defined a set of generalized student outcomes that are performance-based? The assessment needs of course credit models vs. performance standard models needs to be addressed. The RFPs should include provisions for assessment "fit" among participating institutions.
>
> How will assessment for placement purposes be handled? The prerequisites for students should be addressed in the RFP. To what extent do admissions standards come into play?
>
> Resource availability (i.e., library, tutoring, etc.) needs to be addressed in the RFP.

Equal Education and Employment Opportunity

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

ASSESSMENT POLICY AND GUIDELINES

1. POLICY. Guidelines and requirements for assessment of learning received by means of a telecommunications-based delivery system are not unique. While recognizing the complexity of the issue, the affinity group nonetheless maintains that principles of assessment of "telelearning" should in general be the same as those of assessment of learning "on-campus". The assumption is made that assessment should be guided by well articulated, externally validated outcomes.

2. PURPOSES OF ASSESSMENT. Assessment should be viewed as a key improvement process that can be used in the academic, administrative, and student support services areas. However, since the core process of institutions of higher education is student learning, assessment in Missouri primarily serves three major purposes: A) improvement of student learning and instruction, B) accomplishment of institutional mission, and C) accountability for achievement of educational goals.

A. Improvement of Student Learning and Instruction. Assessment cannot be effective without first clearly defining what is to be assessed. It is the responsibility of faculty to determine the student learning outcomes that drive the curriculum. Outcomes can be thought of as student "needs" as defined by faculty, employers, alumni, etc., and consists of a specific set of knowledge, skills, and attitudes. It is likely that an institution has a set of outcomes common to all graduates (e.g. general education) and other outcomes unique to the various degree programs. In order to change and improve student learning and instruction, student data derived from assessment of institutional/program/course outcomes must be used as feedback to students and faculty. Assessment data can also be used to document student and faculty performance for accountability and evaluative purposes.

B. Achievement of Institutional Mission. The outcomes defined by each program operationally define the institutional mission. The outcomes must flow from and support the institutional goals. Every department/unit mission should be derived from the overarching mission of the institution and assessment should be used as a means of attaining and documenting achievement of that mission.

C. Accountability for Achievement of Educational Goals. Institutions of higher education in Missouri recognize a variety of state-wide constituencies to which they are appropriately accountable for the effectiveness of their educational programs including but not limited to students, parents, employers, taxpayers, the respective governing boards, the Coordinating Board for Higher Educations, and the state legislature. To this end, institutions should collect evidence which includes data verifying that the institution is making progress in meeting institutional goals based on state, national, and/or international academic standards.

3. LEVELS/CONTEXTS OF ANALYSIS. It should be recognized that assessment, viewed as a means for general process improvement and accountability, occurs at different levels and contexts of analysis. As such, assessment should be fully integrated into the institution's entire operational system, including academic services, administration, student affairs, institutional planning, and resource allocation. The focus of institutional assessment, however, must be on student learning.

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4. MODES OF ASSESSMENT. Assessment should be based on multiple measures (i.e., more than one type of assessment of a given outcome in a variety of contexts through a variety of means) appropriate to the program and institution using them. The data collected should be longitudinal and should include both quantitative and qualitative elements. Assessment programs should be based on reliable research and proven practices. In addition, assessment instruments and methods should be continually evaluated to determine their utility in the assessment process.

An institution should have the flexibility in selecting the assessment procedures that, in the judgment of the faculty, administration, and staff, are consistent with the institution's specific mission, the students being assessed, and the purposes for the assessment. It is recommended that each institution establish an external evaluation mechanism whereby both the institution's program outcomes and assessment instruments are regularly reviewed and evaluated by a unit or group external to the institution.

5. INSTITUTIONAL ASSESSMENT RESPONSIBILITY. Each institution shall assume responsibility for conducting assessment, analyzing and interpreting the data collected, using the information to improve the assessed processes, and disseminating the results in a professional and ethical manner. It is particularly important that institutions involved in joint ventures cooperate in the sharing and development of assessment instruments and processes. However, it is ultimately the responsibility of the degree granting institution to ensure that appropriate standards of performance are met by its graduates.

6. DISSEMINATION OF RESULTS. Given the refinement of missions and the recognition of the need for multiple means of assessment, comparisons between institutions, when appropriate, should be based on multiple measures and include contextual information. The institutions collectively, with the support of the Coordinating Board for Higher Education, will work to help the public understand the complexities involved in assessing students given the mix of traditional , non-traditional, and transfer students of varying interests, backgrounds, and abilities served by higher education in Missouri.

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ISSUES REGARDING TELECOMMUNICATIONS-BASED DELIVERY SYSTEM

Submitted by
Council of Missouri State Higher Education Business Officers

The financial officers for state-supported colleges and universities met on April 9, 1996. One agenda item for discussion was the financial officers' perspective on issues which require attention as the state embarks on telecommunications-based delivery of educational programs. There are a number of administrative details which will require resolution as we increase telecommunications-based delivery. However, the following two major issues were deemed critical to this process:

1. The administrative mechanisms to address admitting students; awarding and disbursing financial aid; collecting and refunding fees; and setting fee rates will create an unmanageable bureaucracy if present manual systems/consortium arrangements are used. Presently several colleges and universities have consortium agreements for dually enrolled students, and instructional fees are based on the fee structure of the institution offering the course. These consortium arrangements rely on a highly labor-intensive process which is now manageable only due to the limited number of students. Future services for telecommunications-based delivery could include many students simultaneously enrolled in courses from multiple institutions with different fee structures and academic term lengths.

   Possible Resolution: An administrative structure is needed to act as a clearinghouse for the above-mentioned issues. This clearinghouse could be a virtual entity whereby as student activity occurs, data electronically flow between the campus and the entity. This virtual clearinghouse would facilitate financial aid eligibility, collection of monies, etc. based on the student's total enrollment regardless of location. Key to this virtual clearinghouse is the need for centralization of data, timeliness of data transmission, and overall consortium agreement details. There may be a possibility the present CBHE ATOM program could be expanded to address these needs.

2. Interactive distance learning is an important part of telecommunications-based programs. However, most believed asynchronous learning offerings may be more prevalent. Nonetheless, all believed that if distance learning is vital for academic program accessibility, a state commitment to provide funding for such offerings is needed. Presently, such courses are not break-even due to line charges, class sizes, up-front equipment costs, and continuing maintenance/operation expenses.

   Possible Resolution: Efforts should be made to reduce line charges by a statewide contract, to provide supplemental funding for additional costs associated with distance learning (similar to out-of-district subsidy for community colleges), and/or create a statewide interactive distance learning network which can be used by all colleges and universities (similar to the Maine system).

Report to the Resource Group for Telecommunications-Based Delivery System from the Vice Presidents for Academic Affairs of Four-Year/Graduate Institutions. (This report is endorsed by the affinity group of representatives of four-year public, two-year public, and independent colleges and universities.)

Our group met on several occasions. These recommendations reflect our several reports to the Resource Group and the participation of our representatives in the Resource Group.

1. We favor a structure with a backbone of key locations and regional hubs that will link the four-year/graduate public colleges and universities, the two-year public colleges, the independent colleges, the public schools, and other state agencies. This will allow us to build on existing structures and would have the advantages, among others, of allowing careful monitoring, decentralizing delivery, decentralizing person power and management, and allowing for needs assessment on a regional basis. It is essential that this proposed structure grow to serve the varied needs of the state.

2. We favor the recommendation of the technology subgroup which would provide, as the highest priority and soon, at least an additional T1 connection to all institutions. In developing such a proposal, we suggest that substantial funds be provided for (1) technical hardware for the network and delivery sites, (2) operations, (3) program development, and (4) professional development. This is the highest priority, for if the infrastructure is not in place, there will be no need for policy and program development. On the other hand, if this implementation is delayed, then we recommend that the state-of-the-art be explored at the time to substitute for the T1 network whatever technological developments are appropriate at the time.

3. The key components of the system should be: (1) all parts of the system are compatible; (2) total connectivity for all with the potential to expand beyond the hubs (e.g. to state agencies, public schools, etc.); (3) broad latitude in local and regional focus; (4)multiple usage--that is, voice, video and data--for instruction of degree courses, degree programs, life-long learning, certification and accreditation updates, and cultural growth; (5) a system that allows for modification and growth and adaptation of new technologies as they emerge. We acknowledge that these various services would most likely occur simultaneously and probably with multiple connections.

4. Although this group was designated as a "Telecommunications" resource group, it is emphasized that the development of distance education will probably not be "television" as we have known it but the integration of

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voice, video, and data.

5. Needs assessment should probably be done on a regional basis, although the ultimate delivery of courses will probably not be defined by regional boundaries. Current trends in "virtual colleges and universities" suggest that "geographical boundaries" will become obsolete when the entire system is interconnected.

6. Although we may be looking at new programs and the extension of existing programs, it will probably be most practical in the beginning to discuss the delivery of existing programs, thereby maximizing the efficiency of the system and the return on investment. We are not supportive of the notion of RFP's being submitted to the CBHE. Rather, we think that we must allow for a multitude of options as we determine which options emerge and become viable. We may be talking about such things as a virtual college or university, regional consortia, individual programs, and all delivered either in a synchronous or asynchronous format. Thus, entrepreneurship should be encouraged as programs and institutions begin to experiment with the development and delivery of courses and programs.

7. Quality of programs via distance education should be no different than programs in more traditional formats. Quality should always be emphasized, regardless of format, but adaptation of technologies does not necessarily indicate that new quality measures are required.

8. It will be necessary to determine which institution/s grant a degree even though courses may originate to and from several sources. Policies will need to be developed as these arrangements emerge, particularly if we get to the concept of a virtual college/university. The issue of where and how certain programs are accredited will also have to be resolved.

9. There will need to be procedures adopted to clarify how applying for financial aid, administering financial aid, and providing student services will be determined.

10. Early emphasis and development will probably be in the area of individual courses rather than complete programs. Likewise, early cooperative efforts will probably be in the area of delivering or adapting existing programs rather than developing new programs.

11. Admission standards must be considered since they vary at institutions. Thus, a course delivered through distance education, or a student enrolled in a distance education course, may find acceptance at one institution but not another.

12. Assessment of courses and programs is essential. We assume that assessment occurs in all existing courses and the adaptation of new media does not necessarily result in new assessment needs. However, we may need to look at new ways of delivering assessment tools via distance education, creatively using established assessment techniques as well as encouraging the development of new techniques as may be appropriate. In addition, some have suggested that this may necessitate a closer look at outcomes-based objectives.

13. As these programs develop, we will need to have training programs and development strategies on individual campuses with adequate consultation with faculty. Appropriate incentives and rewards for faculty to participate will probably be necessary for long-term success with each

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institution free to determine the nature and extent of these rewards consistent with its mission and institutional priorities. Since instructional assignments vary by campus, this will necessitate campus-based policies and planning.

14. As we begin to put a technological infrastructure in place, the CBHE, working with the academic officers and other groups, should develop implementation strategies for items such as those in 8 through 12 above.

****

For further information contact:
James E. Roever, Vice President for Academic Affairs
Missouri Western State College
St. Joseph, Missouri 64507
Phone: 816-271-4234 Fax: 816-271-4502 email: roever@griffon.mwsc.edu

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Continuing Education Affinity Group

The Continuing Education Affinity Group met on Friday, April 12 to discuss policy implications of a telecommunications delivery system. The group generally agreed that we do not wish to recommend policy as we believe current CBHE policies are adequate with respect to this delivery system. However, we do wish to offer a recommendation for CBHE and raise issues which will need to be considered at the institutional level.

Recommendations

1. The CBHE needs to work with other state agencies such as Economic Development, Labor, DESE, etc. to identify the needs of business and industry and assist in linking these needs with higher education. Ultimately, such information can be shared over a web page if funding for maintenance and support is provided.

2. While affirming the right of institutions to determine how learning is validated, institutions need to review the variety of educational opportunities that are available and develop flexible approaches to the development of a student's program of study.

3. Institutions need to develop minimal professional development standards and support mechanisms for faculty teaching through telecommunications.

4. Institutions will need to develop a broader concept of student services to assist students at a distance. For example, video tapes, telephone advising/information, web based information systems need to be explored.

5. May wish to consider adopting the WCET "Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs."

Issues

1. Residence requirements need to be reviewed.

2. Information needs of students re institutional requirements. Need to be very clear and published.

3. Consumer Protection. How do students distinguish between accredited quality programs and offerings that will not be acceptable to most institutions?

AFFINITY GROUP REPORT
MISSOURI ASSOCIATION OF FACULTY SENATES

May 21, 1996

The Missouri Association of Faculty Senate (MAFS) is eager to engage in on-going conversation regarding the role of faculty in the use of telecommunications-based delivery systems. Presented here is an initial draft of collective thoughts and recommendations related to the development of guidelines and policies concerning faculty. The Association concurs with passages in the May 14, 1996, TBDS Resource Group draft plan that relate to the provision of opportunities for faculty development, support, and reward. It recognizes, however, and maintains that many significant policy issues pertaining to quality remain to be addressed and answered. Policy issues included in this report speak in an initial way to: faculty voice; faculty involvement in statewide planning; statewide faculty, faculty work; and curriculum and learning outcomes. As the voice of the faculty, MAFS pledges to work toward bona fide faculty involvement in learner-oriented academic program design and delivery through telecommunications. Questions relating to program quality and faculty roles are paramount in our deliberations.

Faculty Voice

The academy as it is now known is about to undergo change and restructuring; redefinition of faculty lines; reapproachment to teaching methods, autonomy, and productivity; redesign of delivery systems for an "anytime, anywhere" schema; new emphasis upon course design, delivery (and management); increasing demand for access to services; and deemphasizing of local and monopolistic centers of education.

The Missouri Association of Faculty Senates (MAFS) serves as the statewide faculty voice in telecommunications-based delivery systems. The organization purposes to provide a network of communication among the faculty of all four-year and two-year, public and private, institutions in the State.

Guiding Tenet

Change is best facilitated when those most affected by the change play a central role in the creation and implementation of the change. Faculty will be greatly affected by changes associated with TBDS, and therefore must assume an integral role in this change process.

Faculty Involvement in Statewide Planning Process

Understanding the value of curriculum delivery through telecommunications in:

- delivering educational opportunities commensurate with student needs and environment (access),
- providing on-site training for employee upgrades in public and private sectors,

- delivering educational opportunities in costly fields of instruction (engineering, computer science, etc.), and in
- offering access to instruction in such areas as remedial courses, advanced placement courses, non-credit continuing education courses, and certification programs,

we believe that through existing or new faculty governance processes, faculty should play a major role in the establishing of state and institutional guidelines and policies that relate to or that impact faculty.

Representatives of the faculty should be involved in the proposed subset group that would address policy issues and statewide planning (Section VI., B, 3, C, 3c) of the May 14, 1996 draft document).

Within their own institutions, faculty should be involved in defining the use of TBDS within the total curricular offerings and mission of a university.

Statewide Faculty

The Vocational Technical Education Plan refers to the need for developing a "teaching corps for vocational and technical education" (pp. 16, 27). Those eligible for teaching positions in these settings may have vocations as practitioners in industrial or clinical settings. The prospect of designating a statewide faculty to deliver baccalaureate and graduate programs would not lend itself to comparable work force flexibility. Standards set by professional organizations and accrediting bodies, and principles of good practice, dictate the selection and assignment of faculty. In this regard, we endorse the following guidelines:

- That faculty who teach in a TBDS mode meet qualifications demanded within the professions and be faculty-selected,
- That faculty own any statewide faculty,
- That a statewide faculty that is selected from a discipline where such is advisable be one among other means of development for TBDS academic programs,
- That faculty assigned to teaching via this mode hold some bona fide form of faculty status; the use of occasional per course faculty or any other classification of faculty who have been employed without review by a body of peers is not supported.
- That statewide faculty are not physically transferable from one institution to another.

To ensure quality of instruction, faculty should decide in which programs a statewide faculty would be efficacious; and should engage in the same process of faculty selection as occurs in choosing faculty in traditional settings.

Faculty Development, Support, Work

It is the essence of faculty work that is the fundamental cost and productivity issue (Change, March/April 1996).

An unanswered question dealing with faculty load is posed in the Draft Report (VIII., p. 47). There are many related policy issues to be considered as well; some of the most significant follow. We concur with the provisions in the Draft document for faculty development and reward (IV., C, VI., E 11).

- Faculty workload must be equitably defined, particularly if one result of teaching via telecommunications is to increase the student/faculty ratio. Reassigned time and credit for the development of new methodologies and course materials must be incorporated into the workload.
- If the quantity of written communication between faculty and students is increased, the faculty workload becomes greater. (The possible use of teaching assistants to monitor e-mail would counter the advantage of one-to-one faculty to student communication.)
- Individual faculty should be limited to a given percentage of teaching load that could be assigned to distance learning. Settings requiring face-to-face interaction with students are necessary and desirable.
- Each university should commit a significant investment in faculty development and training opportunities prior to using TBDS and on a continuing basis.
- Some disciplines may not lend themselves to distance learning; however, opportunities for faculty training in new technologies and systems of delivery should be across all disciplines.
- Appropriate technical support services should be provided.
- Faculty tenure and promotion procedures should be revised to include reward for telecommunication-based instruction and related scholarship, but in ways that assure that faculty who don't engage in these are still tenurable.

Curriculum, Learning Outcomes

The development and revision of curriculum is vested in the faculty. Curriculum development cannot be decoupled from curriculum delivery (consonant with Draft Report (5/14, IV., F, 3) and Principles of Good Practice).

- Curriculum should remain a faculty decision.
- Model curricula established for integration of RFP-generated courses from two or more universities should be developed collaboratively by faculty in the discipline. Faculty

should serve on the statewide entity that reviews RFPs and that assesses performance of programs delivered cooperatively.

- Disciplinary associations across institutional lines should be formed.
- If learning is increased and the process made more efficient by enhancing instructional technologies, such technologies should accommodate and support different teaching methods.
- Teaching methods, teaching autonomy, and productivity should be guided by the faculty.
- Faculty lines—mentoring, maintenance of courses, purchasing and licensing of software and course materials in consultation with technology specialists, etc., should be faculty determined.
- Faculty should determine student learning outcomes or competencies for each course consistent with assessment measures in other courses.
- Student admission standards and prerequisite coursework should be pre-determined.
- Course syllabi and course content for all modes of delivery should be comparable.
- Academic calendars should be in common.

Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs

In addressing the issue of quality, the MAFS endorses adherence to the Principles of Good Practice.

Faculty

In different reports of the discussions of the TBDS Resource Group, the faculty have been referred to as a resource or as an information delivery system. The success of an electronically-delivered program relies on positive faculty effort and input. It is hoped that through continued discussion, the significant role faculty play in curriculum development, implementation, and assessment will be elucidated.

COORDINATING BOARD FOR HIGHER EDUCATION

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THE HONORABLE MARY K. FINDLEY
CHAIRMAN

KALA M. STROUP
COMMISSIONER

TO: Coordinating Board's Telecommunication-Based Delivery System Resource Group

FROM: Student Financial Aid Affinity/Advisory Group

DATE: April 11, 1996

SUBJECT: Student Financial Aid Delivery Policies and Issues for a Telecommunications-Based Delivery System

The affinity group for student financial aid has met twice to address student financial aid delivery issues through telecommunications. The student financial aid advisory group was represented by the following members.

Laura Archuleta, William Woods University
Hal Deuser, Saint Louis University
Jeff Ford, Three Rivers Community College
Pam Fowler, Sanford Brown College
Herb Gross, St. Louis Community College at Forest Park
Todd Morriss, Southwest Missouri State University
Phil Shreves, Central Missouri State University
Jim Wyant, DeVry Institute of Technology

The delivery process of student aid can be complicated and cumbersome at times for institutional administrators. For example, federal Title-IV student aid programs are reauthorized by Congress every five (5) years. Also, new state programs may be created and enacted by the Missouri Legislature. If and when federal or state law is amended or created, new regulations must be written and interpreted so that institutions can implement procedures to be in compliance with the appropriate legislation. Therefore, based on the current set of federal and state regulations, the advisory group focused on how student financial aid could be efficiently and effectively delivered through a telecommunications-based delivery system.

As the result of our discussion, the following policies were developed and are being recommended to the telecommunications-based delivery resource group.

1. Institutions would utilize consortium agreements
2. All institutions would have to be connected electronically and a statewide student information database should be established for institutions to exchange data and enrollment information so that the consortium agreements could be administered effectively.

-OVER-

3. All policies guided by the telecommunications-based delivery system to be implemented must be in compliance with federal and state student financial aid regulations.

4. Schools that participate in the delivery of courses through telecommunications must provide data and information in a timely manner and must establish and maintain cooperative efforts with all offices and departments within all institutions.

Additionally, the group determined that the following issues will affect student aid delivery policies.

1. The delivery of public or private non-Title-IV, non-state aid, or third party programs (i.e., veterans' benefits and vocational rehabilitation funds) should be the responsibility of the agencies that are responsible for the funding and administration of such programs. These agencies would need to have access to the statewide database to monitor and administer their programs.

2. Common forms and materials (i.e., consortium and institutional participation agreements) should be developed by the Coordinating Board for Higher Education or a designated state agency for distribution statewide. Some of these materials may require review by the U. S. Department of Education and the appropriate state agencies to ensure compliance with program regulations.

3. In-state and out-of-state students who might enroll in telecommunications courses in multiple states will be a concern. Therefore, consortium agreements may be quite different and possibly more difficult to administer for students who enroll in telecommunications courses in multiple states.

As student aid programs change or new programs are created, these policies and issues will need to be reevaluated or new policies may need to be developed. Therefore, the student aid delivery process is an area that may need to be reassessed periodically by the telecommunications resource group and the student financial aid community.

Response from Telecommunications Committee to Proposed Policies from Missouri Institutional Researchers

1. Distance learning courses and the students enrolled in them should be identified for research purposes.

2. Where a distance education course is transcripted determines the institution responsible for that instruction, and the transcripting institution should count the credit in their FTE calculations.

3. For the purpose of retention studies, a student receiving distance learning instruction from an institution that provides courses throughout the state should be counted as coming from that campus and should be treated no differently from the student on-campus.

CBHE Resource Group on Telecommunications for Distance Learning
Library Affinity Workgroup
April 24, 1996

Report

The Library Affinity Workgroup met on April 16 and again on April 23 to identify policy issues related to the role that library and information technology will play to support a telecommunications-based delivery system for higher education in Missouri. Dr. Ron Phipps and Eldon Wallace were present and framed the discussions to coincide with the objectives of the Resource Group. Heavy emphasis was placed on accessibility and utilizing technology to support this role.

The following policies were identified:

Policy 1

Every academic library should provide circulation privileges to any higher education student who is taking a course through any Missouri accredited institution.

Policy 2

The state should fund the implementation of a common library system platform for all academic libraries in the state using OhioLink as a model.

Policy 3

The state should fund a statewide resource delivery system.

Policy 4

The state should license, for statewide use, a wide array of electronic information resources, including journal citation and full-text databases and reference tools.

Policy 5

Training programs in information organization, discovery and retrieval should be developed and made available to higher education students and faculty.

Policy 6

The academic libraries in the state should organize to provide remote ready reference services via e-mail and a 800 telephone number.

Policy 7

Accountability for the existence of adequate library resources for courses or programs should be assigned to the home or originating institution.

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THE HONORABLE MARY K. FINDLEY
CHAIRMAN

KALA M. STROUP
COMMISSIONER

TO: Coordinating Board's Telecommunication-Based Delivery System Resource Group Members and Advisors

FROM: Dan Peterson, Senior Associate
(on behalf of Dr. Ron Phipps)

DATE: May 15, 1996

SUBJECT: Student Services Policies and Issues for a Telecommunications-Based Delivery System

The student services affinity group met twice to address potential policy issues that may affect the delivery of student services through a telecommunications-based system. The student services advisory group was represented by the following members.

Don Arripoli, Southwest Missouri State University
David Braverman, Culver-Stockton College
Brian Corpening, St. Louis Community College-Florissant Valley
Leslye Ellison, Saint Louis University
Ron Gerstbauer, North Central Missouri College
Sandy MacLean, University of Missouri-St. Louis

Attached, for your information, is the final report of student services affinity group.

Attachment

c: Dr. Ron Phipps

Introduction

The concept of learning, personal development and student development for student services are important, intertwined and inseparable. Student success will require additional effort on the part of the institution and additional responsibility on the part of the learner. The policies as recommended support these goals and are designed to assure access and quality student services.

Recommended Policy with regard to Student Services

#1 - For degree or certificate granting programs a host institution has to be identified and held responsible for admission criterion, satisfactory matriculation, granting aid, satisfactory progress and granting the degree...

#2 - CBHE will maintain an electronic inventory of programs at public and private institutions through which students may explore distance learning opportunities. CBHE will also provide a statewide course inventory as well as a career exploration tool designed to lead the student to course/program/institution information.

#3 - Student services are an integral part of the educational program and therefore affect the operating budget of the institution. It is incumbent on each institution to make available student service programs to support distance learners. Of particular importance is the availability of career counseling, academic advising, access training and variety of specialized orientation programs.

#4 - Each institution should review respective fee structures relative to distance learning to address both reductions and increases in costs created by distance learning.

Admissions

Each institution will develop their own information to make available and will deal directly with each student after the student has identified their host institution.

Each student will meet the minimum admission standards of any institution they wish to attend.

Registration

Each institution is responsible for developing and implementing their own registration process utilizing whatever technology they have available.

Records

Each institution will be responsible for maintaining student transcripts.

Student transcripts should not identify method of delivery of instruction.

Academic Advising

High quality academic advising is a critical component of the academic experience. Consequently, we encourage each student to meet with their advisor. Due to distance learning multiple advising opportunities should be made available. Such as self-advising, degree audits and electronic interaction.

4/16/96

FY98 Technical and Budget Recommendations
to
Telecommunications-Based Delivery System Resource Group
from
Technology Subcommittee

Programmatic Assumptions

- Accessibility to postsecondary education services across the state is the issue.
- Special emphasis on access to vocational education programs in less populated regions.
- Supports the achievement of the Guiding Principles and Desirable Characteristics of a Telecommunications-Based Delivery System.
- Resource Group must develop program, with appropriate continuing funding, to capitalize on the capabilities of the technology proposed below. This program is essential for its success.
- Recommend creation of a CBHE IT technical advisory committee to advise on the ongoing development of the network. A parallel programming advisory committee should be constituted.

Technological Recommendations

- Single approach that builds bandwidth.
- Provide minimum of T1 line access to all higher education institutions and area vocational technical schools. T1 is seen as minimal and will have to increase to 45mb and faster as need requires and budget allows. To capitalize on the network, campuses will have to be fully networked, providing 10mb to the plug or better.
- Build T3 network (45mb) backbone, multiple T3 access to the Internet and switching capability to provide T1 access to all institutions. (For institutions with current T1 access, an additional T1 line will supplied.) Hubs will be located initially in Kansas City, Springfield, Columbia and St. Louis. Capability would be leased from major suppliers. Network capacity should be increased to OC3 (155mb) as need requires and budget allows.
- Network access could be used by institutions as their needs required--video and data.
- Six to ten regional tele-education centers and multi-conferencing units will be installed. Coordinate with University of Missouri Technology Community Resource Centers.
- Standards for data will be Internet (TCP-IP) and video will be ITU interchange standards (non-proprietary enhancements)
- One interconnected higher education network should be created, integrating all existing networks and compatible with other state agency networks under development. Cost of additional bandwidth could be reduced if network expansion is developed in conjunction with other state agencies with complementary missions. These include Elementary and Secondary Education, Higher Education, Economic Development, Labor and Industrial Relations and Social Services

Estimated Cost

Total $10 million ($9 million continuing.) for:

- Backbone between four hubs (includes ATM switches).
- T3 Internet lines into state
- T1 lines to 30 postsecondary institutions and 57 AVTS's.
- Six to ten regional video centers and multi-conferencing units.

Report to the Resource Group for Telecommunications-based Delivery System from the CBHE Committee on Transfer and Articulation

A major assumption supported by committee members is:

- Courses and/or programs delivered through distance education should be of the same quality as those delivered on-campus; acceptance of credit should be based on course content and student performance rather than mode of delivery.

The committee agreed that increased opportunities for distance education provided through advanced technologies raise a number of questions that need further consideration. These include:

- How much flexibility should be permitted for the amount of contact hours associated with a given course?
- Should there be more emphasis placed on skills and competencies, rather than seat time, when evaluating transfer credits?
- Should the policies governing correspondence courses be applied to all distance education courses?
- Should Missouri implement a credit bank, i.e., a location where students' credit hours are recorded.
- Should there be particular policies adopted for degree seeking students who are amassing course credits from a number of different institutions but who have not declared an institutional affiliation for degree purposes?

TO: Resource Planning Group for Telecommunications-based Delivery System

FROM: CBHE Transfer and Articulation Committee: Dixie Kohn, Chair; Jerry Brown; Henry Givens; Marcia Kierscht; Eleanor Schwartz; Henry Shannon

DATE: May 16, 1996

SUBJECT: Draft Report

As Missouri moves forward with the development of an effective telecommunications-based delivery system, issues of transfer and articulation will become even more important than they are today. The committee notes and appreciates that the draft report includes a section on transfer and articulation that reflects the recommendations made to you at your last meeting. The current document specifies that:

> Courses and/or programs delivered through distance education should be the same quality as those delivered on campus; therefore, acceptance of credit should be based on course content and student performance rather than mode of delivery.

The committee recommends that the following statements also be added:

> Guidelines that are currently in place for student transfer and articulation among Missouri's colleges and universities, i.e., Credit Transfer: Guidelines for Student Transfer and Articulation Among Missouri Colleges and Universities (October 1987) and institutional articulation agreements,

> should be adhered to for all courses delivered through telecommunications.

In addition, the CBHE Committee on Transfer and Articulation strongly supports the concept of a credit bank and encourages the TBDS resource planning group to include a statement that reflects the following perspective.

> A credit bank, i.e., a place to deposit completed credit hours, is not a new concept. Indeed, military organizations have had extensive experience in this arena. Missouri students would benefit from the establishment of one or more credit banks which would provide a complete history of all credit hours earned. Credit banks may vary in structure, format, and regulations; Missouri should explore various models before establishing a model that meets the needs of both institutions and students. The establishment of one or more credit banks does not eliminate institutional authority for determining student satisfaction of degree and certificate requirements established by the faculty. Prospective degree-seeking students who use of a credit bank should be well-informed that accumulating credit hours does not necessarily guarantee satisfaction of meeting certificate or degree requirements.

Members of the CBHE Transfer and Articulation Committee will be present at your May 21 meeting to answer any questions you may have about these recommendations. Thank you.

APPENDIX G

Listing of Background Documents and References

Listing of Background Documents and References

Policy Documents and Studies

Papers and Presentations from the 1995 Governor's Conference

Web Sites

Text of ACRL Guidelines for Extended Campus Library Services

Text of WCET Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs

Recommendations and findings drawn from the "Study of Missouri's Telecommunications Infrastucture Development" and the "Commission on Information Technology: Report to Governor Mel Carnahan and the Missouri General Assembly" (full references below)

Telecommunications-based Delivery System Resource Group Charge

Policy Documents and Studies

Report to Governor Mel Carnahan and the Missouri General Assembly
January 15, 1995
Commission on Informational Technology

Public Policies Affecting the Missouri Higher Education Delivery System
December 31, 1994
Coordinating Board for Higher Education

Study of Missouri's Telecommunications Infrastructure Development
December 1994
University of Missouri

Study of Missouri's Telecommunications Infrastructure Development
Volume Two: Background Papers
December 1994
University of Missouri

Suggested Statewide Public Policy Initiatives and Goals: Report to the **Coordinating Board for Higher Education**
Task Force on Critical Choices for Higher Education
Adopted by Task Force - June 5, 1992
Adopted by CBHE - October 15, 1992
Clarifying Comments Adopted by CBHE - December 10, 1992

New Academic Programs Review Policies and Procedures
Public and Independent Two- and Four-year Institutions
October 1989
Coordinating Board for Higher Education

The Invisible Campus: Off-campus and Out-of-district Instruction in Missouri
June 1989
Coordinating Board for Higher Education

Papers and Presentations from the 1995 Governor's Conference

Vision and Reality for Telecommunications in American Postsecondary Education
James R. Mingle, Visiting Fellow, EDUCOM, Executive Director, State Higher Education Executive Officers

Sharing Resources Through Telecommunications: Issues in Negotiating and Implementing a Collaborative Model
Marianne Inman, President, Central Methodist College
Tom Brennemen, Director, Kansas City Educational Network (KC-EDNET)

Institutionally-based Delivery of Educational Services Through Telecommunications
Ron Turner, Vice Chancellor, University Outreach and Extension, University of Missouri
Ed Elliott, President, Central Missouri State University

Changing the Landscape of Higher Education: Telecommunications in Other States
George Connick, President, The Education Network of Maine
Mary Beth Susman, Executive Director, Colorado Electronic Community College

Distance Education: Policies, MOREnet, and Libraries
Sara Parker, State Librarian
Bill Mitchell, Executive Director of MOREnet
Ronald A. Phipps, Senior Associate, The Institute for Higher Education Policy

Web Sites

North Carolina Information Highway: http://www.ncih.net

Western Cooperative for Educational Telecommunications: http://www.wiche.edu

ACRL Guidelines for Extended Campus Library Services

Mary Joyce Pickett, Chair

Prepared by The Task Force to Review the Guidelines for Extended Campus Library Services
Approved by the ALA Standards Committee at the 1990 Annual Conference

This revision of the "Guidelines for Extended Campus Library Services" was prepared by a task force appointed prior to the ALA Midwinter Meeting in 1988. Members included Lynn LaBrake, University of Central Florida; Barton Lessin, Wayne State University; Colleen Power, California State University, Chico; Julie Todaro, Austin Community College, Rio Grande Campus; and Mary Joyce Pickett, Illinois Institute of Technology (chairperson). In establishing the need for revision, the task force examined the professional literature, testimony from hearings on the existing guidelines, held at the July 1988 ALA Annual Conference and at the October 1988 Off-Campus Library Services Conference, input from previous users and the Extended Campus Library Services Discussion Group, and information received from regional and professional accrediting agencies. The proposed draft revision was published in the May 1989 *C&RL News*, and hearings were held at the June 1989 ALA Annual Conference. This draft was revised in response to hearing testimony.

Introduction

Library resources and services in institutions of higher education must meet the needs of main campuses, off-campus or extended campus programs, courses taken for credit or non-credit, continuing education programs, and courses attended in person or by means of electronic transmission or other means of distance education. In 1981, "Guidelines for Extended Campus Library Services," designed to assist in the organization and provision of these resources and services, were scheduled for ACRL review.

The task force determined that a revision was necessary based on several factors: non-traditional study becoming a more commonplace element in higher education, an increase in diversity of educational opportunities, an increase in the number of unique environments in which educational opportunities are offered; an increased recognition of the need for library resources and services at locations other than main campuses, an increased concern and demand for equitable services for all students in higher education, no matter where the "classroom" may be; a greater demand for library resources and services by faculty and staff at extended campus sites; and an increase in technological innovations in the transmittal of information and the delivery of courses.

These revised guidelines are designed to outline direction, support a process, stress overall coordination, and support the educational objectives of the extended campus program. The audience for the "Guidelines" includes library staff planning for and managing these extended campus services, other library staff working with extended campus library staff, faculty, administrators at all levels within the educational institution, sponsors of academic programs and accrediting and licensure agencies.

Definitions

"Extended campus community" covers all those individuals and agencies directly involved with academic programs offered away from the traditional academic campus, including students, faculty, researchers, administrators and sponsors.

"Extended campus library services" refers to services offered away from the main campus in support of academic courses and programs of the institution responsible for the academic program. These courses may be taught in traditional or non-traditional ways. This definition also includes services to individuals who are involved off campus regardless of where credit is given. The definition does not include non-traditional students pursuing on-campus academic programs.

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"Parent institution" refers to the institutional entity responsible for the offering of academic courses and programs off campus.

"Library" denotes the academic library directly associated with the parent institution offering the off-campus program unless otherwise noted.

Philosophy

This document assumes the following statements:

The parent institution is responsible for providing support which addresses the information needs of its extended-campus programs. This support should provide library service to the extended-campus community equitable with that provided to the on-campus community.

The library has primary responsibility for identifying, developing, coordinating and providing library resources and services that address the information needs of the extended campus community.

Effective and appropriate services for extended campus communities may differ from those services offered on campus. The requirements of academic programs should guide the library's responses to defined needs.

Where resources and services of unaffiliated local libraries are to be used to support information needs of the extended-campus community, the library, or where appropriate, the parent institution, is responsible for the development of written agreements with those local libraries.

The extended campus library program shall have goals and objectives that support the provision of resources and services consistent with the broader institutional mission.

Management

It is the responsibility of library management to identify, plan, and oversee library services and resources in support of extended-campus programs. The library administration should:

1) assess the needs of its extended-campus community for library resources, services and facilities.

2) prepare a written profile of the extended community's information needs.

3) develop a written statement of immediate and long-range goals and objectives that address the needs and outline the methods by which progress can be measured.

4) involve academic community representatives, including the extended campus faculty and students, in the formation of the objectives and the regular evaluation of their achievements.

5) assess the existing library support, its availability and appropriateness.

6) participate with administrators and teaching faculty in the curriculum development process and course planning to insure appropriate library resources and services are available.

7) promote library support services to the extended campus community.

Additional areas of management responsibility are covered in the sections on Finances, Personnel, Facilities, Resources, and Services.

Finances

The parent institution should provide continuing financial support for the library needs of the extended-campus community. This financing should be:

1) related to the formally-defined needs and demands of the extended-campus program;

2) allocated on a schedule matching the parent institution's budgeting cycle;

3) identified with the parent institution's budget and expenditure reporting statements;

4) accommodated to arrangements involving external agencies, including affiliated, but independently-supported libraries.

Personnel

Personnel involved in the management and coordination of extended campus library services may include campus and library administration, the librarian managing the services, additional professional staff in the institution, and support staff from a variety of departments.

The library should provide professional and support personnel sufficient in the number and quality necessary to attain the goals and objectives of the extended-campus program, including:

1) a librarian to plan, implement, coordinate and evaluate library resources and services addressing the information needs of the extended-campus community;

2) persons with the capacity and skills to identify informational needs and respond to them flexibly and creatively;

3) classification, status, and salary scales for ex-

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tended-campus library staff that are equivalent to those provide for other library employees.

Facilities

Libraries should provide facilities, equipment and communication links sufficient in size, number and scope to attain the objectives of extended-campus programs. Arrangements may vary and should be appropriate to the programs offered. Examples of suitable arrangements include, but are not limited to:

1) access to facilities through agreements with a nonaffiliated library;

2) designated space for consultations, ready reference collections, reserve collections, electronic transmission of information, computerized database searching and interlibrary loan services;

3) a branch or satellite library.

Resources

Access to library materials in sufficient number, scope, and formats should be provided to:

1) support the students' needs in fulfilling course assignments (e.g. required and supplemental readings and research papers) and enrich the academic programs;

2) support teaching and research needs;

3) accommodate other informational needs of the extended-campus community as appropriate.

Programs granting associate degrees should provide access to collections that meet the "Association of College and Research Libraries (ACRL) Standards for Community, Junior and Technical College Learning Resources Programs." Programs granting baccalaureate or master's degrees should provide access to collections that meet the standards defined by the "ACRL Standards for College Libraries." Programs offering doctorate degrees should provide access to collections that meet the standards defined by the "ACRL Standards for University Libraries."

Services

Library services offered to the extended-campus community should be designed to meet effectively a wide range of informational and bibliographic needs. Examples that may help meet these needs include:

1) reference assistance;

2) computer-based bibliographic and informational services;

3) consultation services;

4) a program of library user instruction designed specifically to meet the needs of the extended-campus community;

5) assistance with non-print media and equipment;

6) reciprocal borrowing, contractual borrowing and interlibrary loan services;

7) prompt document delivery, such as a courier system or electronic transmission;

8) access to reserve materials;

9) promotion of library services to the extended-campus community.

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PRINCIPLES OF GOOD PRACTICE FOR ELECTRONICALLY OFFERED ACADEMIC DEGREE AND CERTIFICATE PROGRAMS

PREAMBLE

These Principles are the product of a Western Cooperative for Educational Telecommunications project, "Balancing Quality and Access: Reducing State Policy Barriers to Electronically Delivered Higher Education Programs." The three-year project, supported by the U.S. Department of Education's Fund for the Improvement of Postsecondary Education, is designed to foster an interstate environment that encourages the electronic provision of quality higher education programs across state lines. The Principles have been developed by a group representing the Western states' higher education regulating agencies, higher education institutions, and the regional accrediting community.

Recognizing that the context for learning in our society is undergoing profound changes, those charged with developing the Principles have tried not to tie them to, or compare them to, traditional campus structures. The Principles are also designed to be sufficiently flexible that institutions offering a range of programs—from graduate degrees to certificates—will find them useful.

Several assumptions form the basis for these Principles:

- The electronically offered program is provided by or through an institution that is accredited by a nationally recognized accrediting body.
- The institution's programs holding specialized accreditation meet the same requirements when offered electronically.
- The "institution" may be a traditional higher education institution, a consortium of such institutions, or another type of organization or entity.
- These Principles address programs rather than individual courses.
- It is the institution's responsibility to review educational programs it provides via technology in terms of its own internally applied definitions of these Principles.

PRINCIPLES

Curriculum and Instruction

- Each program of study results in learning outcomes appropriate to the rigor and breadth of the degree or certificate awarded.
- An electronically offered degree or certificate program is coherent and complete.
- The program provides for appropriate real-time or delayed interaction between faculty and students and among students.
- Qualified faculty provide appropriate oversight of the program electronically offered.

Institutional Context and Commitment to Role and Mission

- The program is consistent with the institution's role and mission.
- Review and approval processes ensure the appropriateness of the technology being used to meet the program's objectives.

Faculty Support

- The program provides faculty support services specifically related to teaching via an electronic system.
- The program provides training for faculty who teach via the use of technology.

Resources for Learning

- The program ensures that appropriate learning resources are available to students.

Students and Student Services

- The program provides students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technological competence and skills, technical equipment requirements, availability of academic support services and financial aid resources, and costs and payment policies.
- Enrolled students have reasonable and adequate access to the range of student services appropriate to support their learning. Accepted students have the background, knowledge, and technical skills needed to undertake the program.
- Advertising, recruiting, and admissions materials clearly and accurately represent the program and the services available.

Commitment to Support

- Policies for faculty evaluation include appropriate consideration of teaching and scholarly activities related to electronically offered programs.
- The institution demonstrates a commitment to ongoing support, both financial and technical, and to continuation of the program for a period sufficient to enable students to complete a degree/certificate.

Evaluation and Assessment

- The institution evaluates the program's educational effectiveness, including assessments of student learning outcomes, student retention, and student and faculty satisfaction.
- Students have access to such program evaluation data.
- The institution provides for assessment and documentation of student achievement in each course and at completion of the program.

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Recommendations and Findings from the

"Study of Missouri's Telecommunications Infrastructure Development"
and the
"Commission on Informational Technology:
Report to Governor Mel Carnahan and the Missouri General Assembly"

Discussion Issues for the
Telecommunications-based Delivery System Resource Group

Study of Missouri's Telecommunications Infrastructure Development

Findings:

1. Solutions which attempt to define a set of **specific** technologies, services, or providers that "should" be deployed do not appear to be very helpful. In addition, there is seldom only one possible technology, service, or provider capable of forming a solution.

2. The most basic and visible technology trend today is the deployment of digital technologies in many forms by many different carriers.

3. The next few years will see increased development of digital cellular systems.

Recommendations:

1. To minimize the chances of being totally dependent on a technology which may quickly become obsolete or ineffective, knowledgeable users are creating networks from multiple technologies and vendors where possible.

2. The most effective method for building a statewide network is in functional layers, one layer at a time, with increasingly complex and band-width applications in each successive layer. Missouri has begun this process with the integration of MOREnet and the statewide government system.

3. Using the concept of building in functional layers, a statewide backbone for voice, video, and data applications could be developed using the existing MOREnet backbone as a starting point. The main backbone hubs of Kansas City, Springfield, Columbia, and Rolla could serve as regional hubs.

4. The most cost-effective course for Missouri may be to migrate the existing MOREnet infrastructure into a wide-band network capable of supporting data and video applications.

Commission on Informational Technology

Findings:

1. Fundamental principle: The telecommunications industry in Missouri has in place a public switched network which is maintained and upgraded throughout the state. To avoid duplication and ensure efficiency, Missouri educators, health care providers, and businesses should participate in the coordination of technology selection.
2. One important objective to enhance access is to create a regulatory and statutory environment to utilize telecommunications services for educational opportunities.

Recommendations:

1. The state facilitate the use of telecommunications in schools, colleges, libraries, and government agencies to implement connectivity, through such entities as MOREnet.
2. There be collaboration among the Department of Elementary and Secondary Education, public schools and public libraries to enhance availability of telecommunications services.
3. Institutions of higher education and libraries continue initiatives to provide access and reach new audiences, as well as to facilitate the establishment of community networks.
4. Community information networks be encouraged in their development in order to provide local access points for global, national, state and local information.
5. A strategy be developed to provide public/private partnership funding for education delivery systems.
6. Telecommunications providers, as a condition of moving (at their request) to forms of regulation other than rate-based rate of return, provide upon request distribution facilities sufficient to deliver advanced telecommunications services to public education institutions and public libraries, without application of construction charges to those institution.
7. Telecommunications providers establish special discounted rates for public education institutions and public libraries.
8. To most effectively use telecommunications to enhance skills of Missouri's workers, the state's telecommunications strategy must include providing training at remote sites, directly to the business or factory, and eventually directly to the employee's desk or home. Instruction should be individualized.
9. In order to meet the demand for educational multi-media and distance learning applications, the telecommunications infrastructure needs to support voice, data and video communications. The degree to which the current infrastructure falls short of this ideal, is the degree to which infrastructure imposes a barrier.

Telecommunication-Based Delivery System
Resource Group
CHARGE

The Coordinating Board for Higher Education (CBHE) is directed by Senate Bill 340, passed by the Eighty-eighth General Assembly and signed into law by Governor Carnahan, to review every five years the mission statements of Missouri's public higher education institutions. These reviews shall include consultation with the governing boards of each public college, university, and technical school. The missions of the individual institutions shall be reviewed by each governing board and the CBHE Advisory Committee within the context of the needs of the citizens of the state and the requirements of business, industry, professions, and government.

At its October 1995 meeting, the CBHE directed the Commissioner of Higher Education to appoint a work group of key educational leaders to assist in meeting the requirements of Senate Bill 340, including developing a ***Blueprint for the Future of Missouri's Higher Education System***. Missouri strives to have a balanced higher education system characterized by programs of high quality that are both financially and geographically accessible to every citizen. Thus, a major theme for the blueprint will be an effective telecommunications-based delivery system. A Resource Group for the Telecommunications-Based Delivery System will be appointed to work with the Blueprint Executive Planning Committee to make recommendations on key issues affecting the future of higher education in Missouri.

The Resource Group for the Telecommunications-Based Delivery System is charged with:

- Developing a ***Blueprint for the Future of Missouri Higher Education*** which will include:
  - ✓ defining characteristics of a focused, balanced, cost-effective and coordinated higher education system with programs of high quality;
  - ✓ the identification of potential cooperative efforts among institutions in the development of new programs and in the establishment of an evaluation system that includes agreed-upon performance measures and a culture of continuous improvement; and
  - ✓ recommendations for an effective telecommunications-based delivery system (including residence center sites) that will ensure geographic and financial access to postsecondary educational opportunities for all Missouri citizens.
- In the process of its deliberations, the Resource Group is further charged with:
  - ✓ Reviewing the current higher education public policy framework, including the goals and objectives adopted by the CBHE in 1992 in response to the Critical Choices Task Force recommendations, and other administrative rules and public policies of the CBHE.
  - ✓ Presenting a report to the CBHE at its June 13, 1996 meeting.

APPENDIX H

ACRONYMS USED IN THIS REPORT

ACRL	Association of College and Research Libraries
ATM	Asynchronous Transfer Mode
ATOM	Automated Transfer of Money
AVTS	Area Vocational/Technical Schools
CBHE	Coordinating Board for Higher Education
CIN	Commmunity Information Network
DESE	Department of Elementary and Secondary Education
EBSCO	Not an acronym; it is the name of a company
EDI	Electronic Data Interchange
FTE	Full time equivalent
ITU	International Telecommunication Union
IVDN	Integrated Voice Data Network
MASFAP	Missouri Association of Student Financial Aid Personnel
REAL	Remote Electronic Access for Libraries
RFP	Request for Proposals
TCP/IP	Transfer Control Protocol/ Internet Protocol
TCRC	Telecommunication Community Resource Center
WCET	Western Cooperative for Educational Telecommunications